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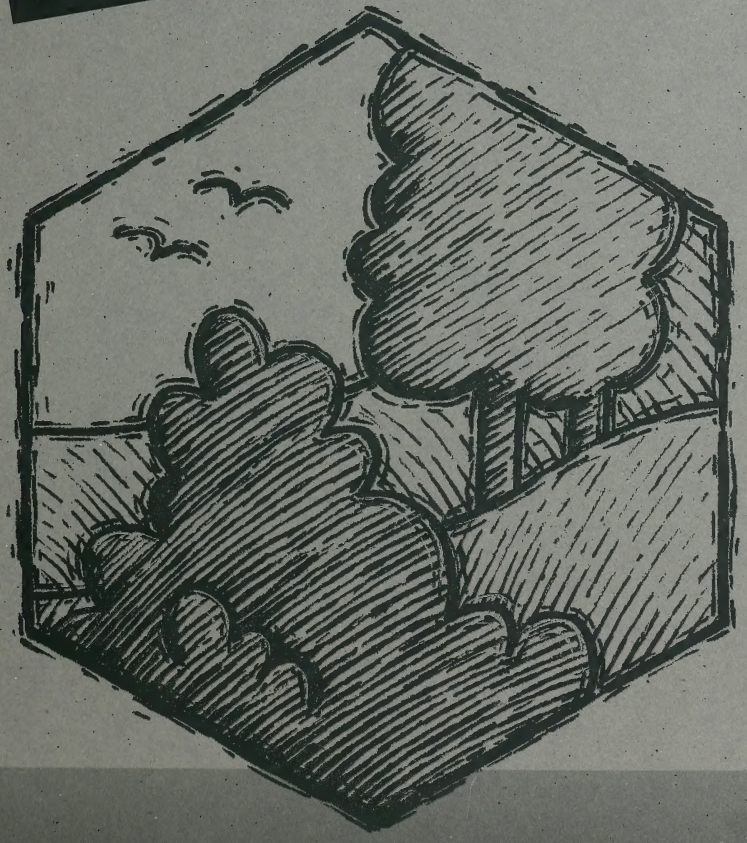
RUMSEY

ECOLOGICAL RESERVE

Management Plan



Alberta
ENVIRONMENTAL PROTECTION
Natural Resources Service

RUMSEY

ECOLOGICAL RESERVE

MANAGEMENT PLAN

Parkland Region
Natural Resources Service
Department Of Environmental Protection

Central Region
Public Lands Services
Department of Agriculture, Food and Rural Development

September, 1998

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APPROVAL STATEMENT

The Rumsey Ecological Reserve Management Plan is the official policy of the Government of Alberta for the management of the reserve. The plan provides direction for management of the reserve consistent with the provisions of the Wilderness Areas, Ecological Reserves and Natural Areas Act. Approval of this plan reflects the government's commitment to protect the ecological resources of the reserve for present and future generations while providing compatible research and educational opportunities.

Frank Cardinal — 10 Dec 1998

F. Cardinal
Director
Parkland Region
Natural Resources Service
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Date

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L. Lyster
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Field Services Sector
Dept. of Agriculture, Food and Rural Development

Date

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PLANNING TEAM ENDORSEMENT

The members of the planning team, as follows, recommend the Rumsey Ecological Reserve Management Plan for approval.

C. Lee Usher — 10 Sept. '98

L. Usher
Usher Ranching Ltd.

Date

Dorothy Dickson — 7th September 1998

D. Dickson
Alberta Wilderness Association
Red Deer River Naturalists' Society

Date

Please note: My signature denotes agreement with this plan. It may not be taken as agreement with the Government opinion (Appendix C).that herbicide use to clear fencelines i.e. for reasons other than ecological benefit (p.33), is in compliance with the WAERNA Act. Nor does it abrogate the right of the groups I represent to challenge that opinion in the future. D.D.

Felix Gebbink — Sept 21/98

F. Gebbink
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R. Bjorge
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PLAN AVAILABILITY

APPROVAL STATEMENT

ENDORSEMENT

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1.0 SCOPE OF THE PLAN

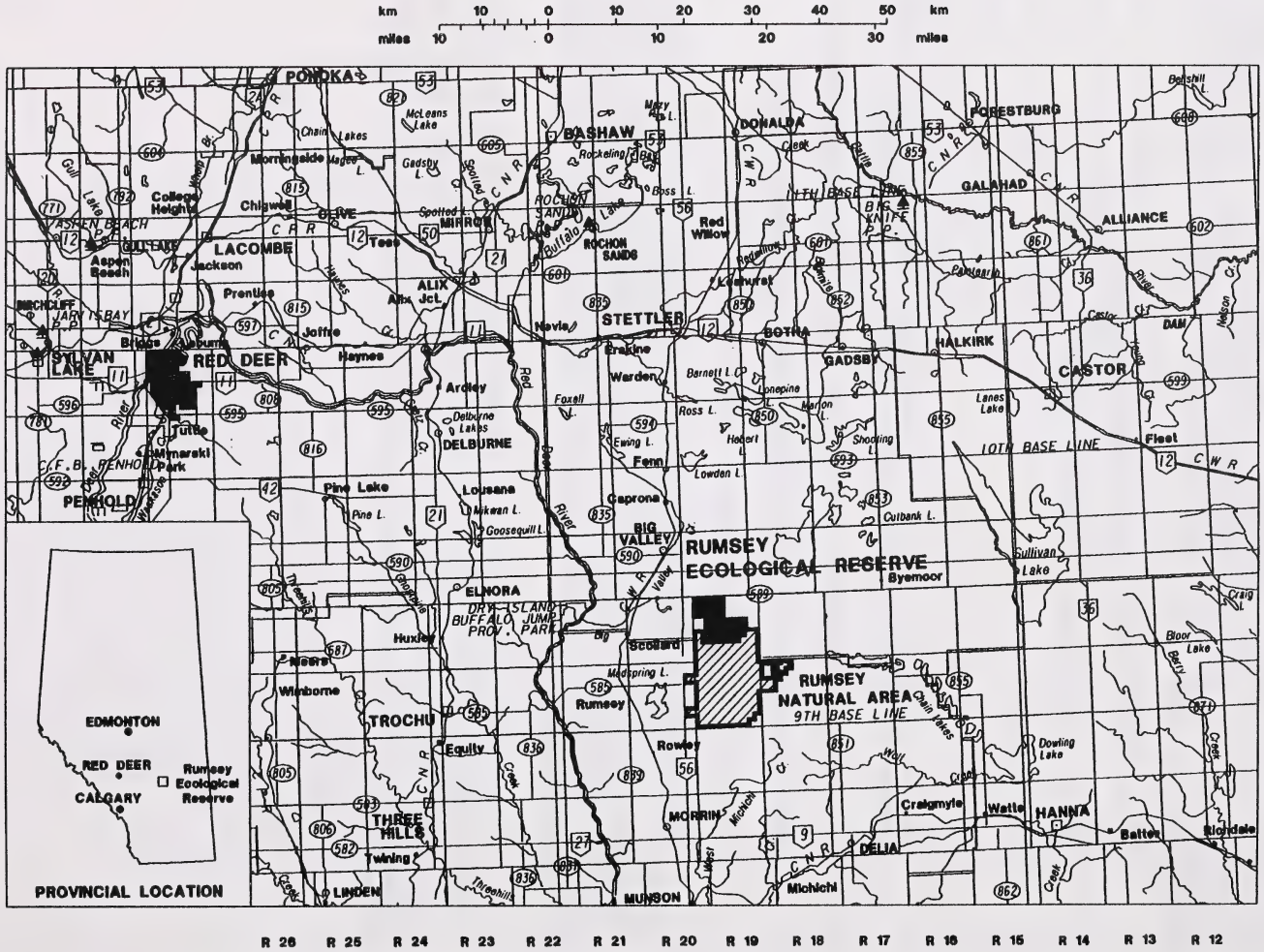
The Rumsey Ecological Reserve Management Plan provides the overall direction for the protection, management and operation of the Rumsey Ecological Reserve (RER). It translates the provisions of the Wilderness Areas, Ecological Reserves and Natural Areas Act into specific guidelines that are consistent with the protection of ecological values of the RER. The plan is a commitment by all involved agencies to the efficient and effective implementation of the management guidelines. More specifically, the current plan:

- describes the biophysical resources and ecological values of the site,
- identifies information gaps and scientific research needs
- reviews existing land uses,
- identifies management issues,
- establishes objectives for preservation, heritage appreciation, outdoor recreation and tourism/economic development within the RER.
- provides management guidelines and strategies to fulfill objectives and resolve identified issues.
- outlines monitoring strategies to evaluate the effectiveness of management of the RER.
- sets the stage for the administrative support required to implement the plan.

This management plan applies only to the Rumsey Ecological Reserve, a 3,431.856 ha (8,480 ac) area located in the northern part of the Rumsey Block (Map 1). The Rumsey Ecological Reserve was designated in 1990 by Order-In-Council 511/90. The term Rumsey Block refers to an area of public land (total area: 18,354.046 ha; 45,352.24 ac) which is the largest remaining representative tract of aspen parkland left in the world. There is also some comparable private land surrounding the Rumsey Block, but this is not included in the area figures.

The portion of the Rumsey Block lying generally to the south of the ecological reserve is designated as the Rumsey Natural Area (designated by Order-In-Council 390/96 on August 21, 1996). The management of this latter area is governed by a policy document entitled the Rumsey Parkland South Regionally Integrated Decision. The similarities and differences between the management for the Rumsey Ecological Reserve and the Rumsey Natural Area are discussed later in this plan in Section 7.0, Surrounding Lands.

RUMSEY ECOLOGICAL RESERVE



Map 1. Provincial Location

2.0 SYSTEMS CONTEXT

2.1 Ecological Reserves in Alberta

2.1.1 Classification of Protected Areas

The Department of Environmental Protection administers seven categories of recreation and protected areas:

Ecological Reserve - Areas selected as representative or special natural landscapes and features of the province, which are protected as examples of functioning ecosystems, as gene pools for scientific research, and for education and heritage appreciation purposes.

Wilderness Areas - Large areas of undeveloped land retaining their primeval character and influence without permanent improvements or human habitation. Natural process in these areas continue relatively unaffected by human influences, and visitors travel by non-mechanized means to experience solitude and personal interaction with nature.

Wildlands - Large areas of undeveloped land retaining their natural character. Human developments and interference with natural processes are kept to a minimum.

Provincial Parks - Protect provincially significant natural, historical and cultural landscapes and features while providing quality recreational and educational experiences.

Natural Areas - Areas selected as representative, special or sensitive natural landscapes and features of the province which are set aside to protect their natural values and provide opportunities for nature appreciation, education and low intensity recreation.

Recreation Areas - Areas which support a range of outdoor recreation opportunities in natural, modified or man-made settings.

Wayside and Access Sites - Serve as rest stops for the travelling public, as local picnic sites or as staging areas and access sites to rivers, lakes, reservoirs or adjacent Crown land. The range of on site opportunities is usually limited by the small size of the site.

Ecological reserves and wilderness areas are the most highly protected designations. Numerous land uses are expressly prohibited by legislation in these areas.

The recreation and protected areas system in Alberta has four broad program objectives:

Preservation	-	To designate natural landscapes that preserve the full range of environmental diversity and special natural features of Alberta.
Outdoor Recreation	-	To include natural landscapes throughout Alberta that ensure opportunities for a variety of resource-based, dispersed recreation pursuits.
Heritage Appreciation	-	To include landscapes that ensure, for all Albertans and visitors, the opportunity to explore, understand and appreciate the full range of Alberta's natural heritage.

Tourism - To include areas capable of supporting tourism infrastructure and sustaining long-term economic viability of adventure travel and ecotourism, including extended tours in unspoiled natural landscapes.

The contribution of Ecological Reserves to these objectives is almost entirely towards the preservation objective.

2.1.2 Natural History Theme Representation

The identification and designation of protected areas in Alberta is based on a landscape evaluation system referred to as the Natural Regions and Natural History Theme Framework. In the following an overview of this framework is provided, along with an examination of the contribution made by the Rumsey Ecological Reserve to the provincial system of protected areas.

Natural Regions are recognized on the basis of broad differences in landscape patterns such as vegetation, soils and geology. There are six Natural Regions in Alberta, which are further separated into 20 subregions (see Map 2). The Rumsey Ecological Reserve is located in the Central Parkland Subregion of the Parkland Natural Region.

The Central Parkland Subregion is a broad curving transition area up to about 200 km wide between the Grassland and Boreal Forest Natural Regions. The Subregion covers about 53,500 sq. km, or about 8% of the area of Alberta. The general landscape character of the subregion is fescue grassland interspersed with groves of aspen poplar and a variety of marsh and meadow vegetation. The aspen poplar forest is characterized by a dense understory of a wide variety of forbs and shrubs. The grassland composition is very similar to the Northern Fescue Subregion to the south.

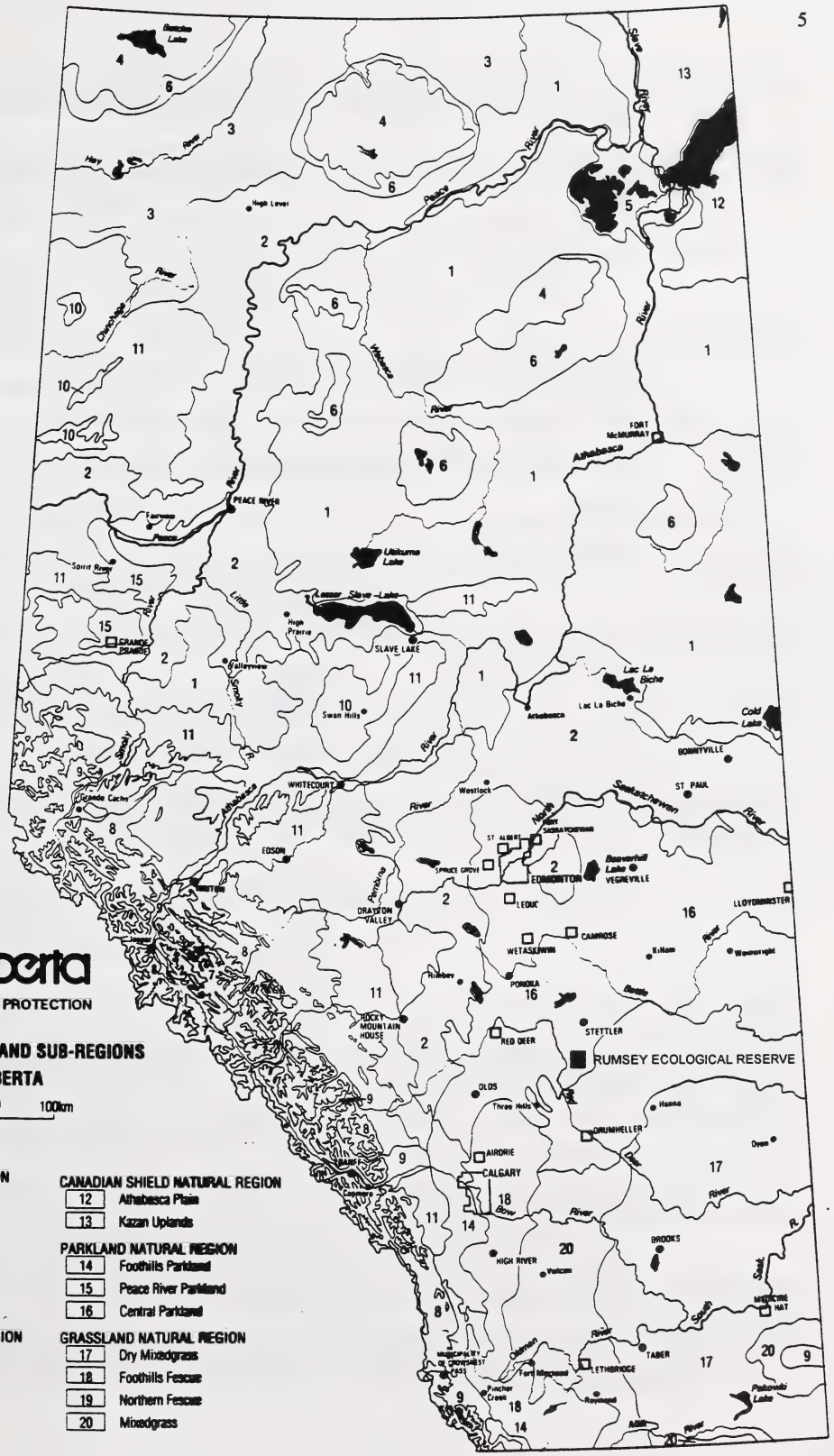
The Rumsey Ecological Reserve is one of fourteen protected areas in the subregion which, when taken together, protect 0.25% of the subregion. The target for protected lands in the subregion is 1,417.5 sq. km, or 2.65% of the subregion.

Within a given subregion the landscape is further analyzed on the basis of a three level system of Natural History Themes. The themes provide a way of describing and classifying a subregion in smaller units in terms of landscape and ecosystem complexes. Themes can also be categorized as being representative (typical or widely distributed features) or special (unique or atypical features). The three levels of themes are defined as:

Level I - broad, significant, easily recognizable landscape types containing a complex of physical and biological features (for example, an exposed slope or spring). Twenty Level I themes have been identified in the province.

Level II - broad vegetation/habitat types that are also distinctive and relatively easy to recognize (for example, within an exposed slope, eroded bedrock would be a Level II Theme).

Level III- more narrowly defined features including very specific plant community types, microhabitat for less common species, individual species and specific landforms.



MAP 2

BOREAL FOREST NATURAL REGION

- 1 Central Mixedwood
- 2 Dry Mixedwood
- 3 Wetland Mixedwood
- 4 Sub-Arctic
- 5 Peace River Lowlands
- 6 Boreal Highlands

ROCKY MOUNTAIN NATURAL REGION

- 7 Alpine
- 8 Sub-Alpine
- 9 Montane

FOOTHILLS NATURAL REGION

- 10 Upper Foothills
- 11 Lower Foothills

CANADIAN SHIELD NATURAL REGION

- 12 Athabasca Plain
- 13 Kazan Uplands

PARKLAND NATURAL REGION

- 14 Foothills Parkland
- 15 Peace River Parkland
- 16 Central Parkland

GRASSLAND NATURAL REGION

- 17 Dry Mixedgrass
- 18 Foothills Fescue
- 19 Northern Fescue
- 20 Mixedgrass

Produced by Alberta Parks Services, Management Support Division. 1994

Rumsey Ecological Reserve contributes the following Level I themes to the protected areas system:

Upland, non-sandy	-	Hummocky Moraine	25.90 sq. km.
Upland, sandy	-	Sandy Plain	1.00 sq. km.
Wetland	-	Wet Meadow	3.00 sq. km.
	-	Shallow Marsh	2.50 sq. km.
	-	Deep Marsh	1.00 sq. km.
	-	Alkali Wetland	0.50 sq. km.

(Source: Table A.16, Report 3, Alberta Protected Areas System Analysis) Revised edition - December 7, 1994)

For Level II Natural History Themes the Rumsey Ecological Reserve contributes as follows:

Level I		Level II		
Hummocky Moraine	-	Grassland	-	well-represented
	-	Shrubbery, Low	-	well-represented
	-	Shrubbery, High	-	well-represented
	-	Woodland, Aspen	-	well-represented
Sandy Plain	-	Grassland	-	some representation
	-	Shrubbery, Low	-	some representation
	-	Shrubbery, High	-	some representation
	-	Woodland, Aspen	-	some representation
Wet Meadow	-	Non/slightly saline	-	well-represented
	-	saline	-	well-represented
Marsh	-	shallow	-	well-represented
	-	shallow, open water	-	well-represented
	-	deep	-	some representation
	-	deep, open water	-	some representation
	-	deep, beaver pond	-	some representation
Alkali	-	open	-	some representation

(Source: Table B.16, Report 3, Alberta Protected Areas System Analysis, Revised edition - December 7, 1994)

No special features are identified in the Rumsey Ecological Reserve in the context of this provincial-scale level of landscape analysis.

2.1.3 Legislative Framework

Ecological Reserves are an integral part of Alberta's overall Special Places system. Established pursuant to the Wilderness Areas, Ecological Reserves and Natural Areas Act (1980), the Ecological Reserves Program is an interdepartmental endeavor.

Overall program coordination and legislative responsibility rests with the Minister of Environmental Protection. On-site management of individual reserves is assigned to the most

appropriate field agency depending upon proximity to field operations and the availability of local management expertise.

Under Section 3.1(1) of the Wilderness Areas, Ecological Reserves and Natural Areas Act, public land may be designated as an ecological reserve to preserve it for ecological purposes. Ecological reserves may include lands which:

- are suitable for scientific research associated with the study of natural ecosystems,
- are a representative example of a natural ecosystem in Alberta,
- serve as an example of an ecosystem that has been modified by man and that offers an opportunity to study the recovery of the ecosystem from that modification,
- contain rare or endangered native plants or animals that should be preserved, or
- contain unique or rare examples of natural biological or physical features

Under Section 5 of the Act programs may be carried out with the approval of the Minister for:

- management and preservation of the animal and plant life and the environment of the ecological reserve,
- environmental research that does not involve any physical disturbance of the ecological reserve,
- furtherance of public education and interpretation, and
- preservation and protection of the ecological reserve.

To protect ecological reserves further the WAERNA Act makes the provision for controlled buffer zones. Strip mines, quarrying, dams, diversions and other water resource undertakings are prohibited in controlled buffer zones.

A table summarizing permitted uses and prohibitions is included in Appendix A.

2.1.4 The Role of Ecological Reserves

To articulate more clearly the role of ecological reserves in the Special Places system, ecological reserves are defined as "areas selected as representative or special natural landscapes and features of the province, which are protected as examples of functioning ecosystems, as gene pools for research, and for education and heritage appreciation purposes." This overall purpose statement is further refined in terms of the four broad program objectives of Preservation, Heritage Appreciation, Outdoor Recreation and Tourism. Specific to ecological reserves the objectives are defined as follows:

Preservation: Protects a system of provincially significant representative and special natural ecosystems and features as defined by Alberta's natural regions and natural history themes, to ensure the perpetuation of genetic materials and natural ecological units.

Heritage Appreciation: Provides opportunities for unstructured individual exploration and appreciation of the natural resource heritage of Alberta to the extent that is compatible with protection of natural resource features. Provides opportunities for exploration and appreciation of natural environments through formal interpretation and education programs in certain ecological reserves to the extent that is compatible with the protection of natural resource features.

Outdoor Recreation: Non-consumptive, nature-oriented recreational use may be permitted subject to management guidelines. (Not a priority objective.)

Tourism: Provides ecologically-based opportunities for visitors, subject to management guidelines. (Not a priority objective.)

The most important objective of ecological reserves is preservation. Ecological reserves are legally established areas that preserve our natural heritage, conserve biological resources and promote in-situ conservation of species and ecosystems over the long term.

Ecological reserves allow ecosystems to maintain their natural processes in a relatively undisturbed state; they protect and maintain essential life support systems.

Scientific research and the associated generation and dissemination of ecological knowledge is a primary use of ecological reserves. Reserves provide secure sites for both short and long term monitoring of environmental changes. They provide undisturbed sites for the study of the structure, function and changes of the natural environment. Increased knowledge and understanding of natural ecosystems will provide solutions to many practical resource management problems.

Ecological reserves also serve as benchmarks or ecological baseline control areas against which to measure the effectiveness of resource management practices throughout the province.

The maintenance of genetic resources for the benefit of present and future generations is an important component of the preservation objective. Ecological reserves assist in ensuring the perpetuation of gene pools as invaluable sources of new genetic material. Unlike zoos, gene banks, botanic gardens and other off-site protection mechanisms, ecological reserves enable genetic resources to continue to evolve subject to naturally occurring environmental conditions. Genetic materials are of increasing scientific value for the development of new pharmaceuticals, for new varieties and strains of agricultural and forestry products, for pest control and other products upon which the world's increasing population depends.

Ecological reserves contribute to heritage appreciation. Reserves provide environmental education opportunities for specialists, researchers, resource managers and the general public. They contribute to a heightened awareness and understanding of environmental matters. On-site visitation can contribute to such understanding provided this use is compatible with the protection objective of the specific reserve. In the broader sense, ecological reserves contribute to environmental education through scientific research, demonstration projects and the dissemination of information via the formal and informal education system through publications and the media.

Ecological reserves should make a significant contribution to improved environmental knowledge and understanding by Albertans. In this way ecological reserves will contribute to the achievement of provincial environmental quality objectives, better land use planning, more effective resource management and better overall environmental decisions.

Ecological reserves may provide limited opportunities for outdoor recreation and environmentally oriented tourism to the extent that these activities are compatible with the preservation objective. As undisturbed natural landscapes they are an expression of beauty, inspiration and spiritual values. As sanctuaries they maintain the awe-inspiring myriad array of plants and animals in Alberta. They are an expression of our desire and need to respect the rights of other life forms to exist.

It is acknowledged that outdoor recreation, heritage appreciation and tourism are not priority objectives for ecological reserves. It is further acknowledged, however, that in many cases ecological reserves are extremely attractive for these purposes. Subsequent sections of this plan

refine the management parameters necessary to ensure that outdoor recreation, heritage appreciation and tourism uses are compatible with the overall preservation objectives.

The goal for the ecological reserves program is to protect, along with other similar designations, a system of representative and special landscapes and features which encompass the full spectrum of the environmental diversity of Alberta.

To help protect the full spectrum of environmental diversity within the province, two sub-classes of ecological reserves are used. These are:

Representative Ecological Reserves:	These sites contain examples of self-sustaining ecosystem types of a particular sub-region of the province.
Special Ecological Reserves:	These sites contain unique or exceptional biological or geographical features, or offer the opportunity to study the recovery of an ecosystem modified by man.

When selecting representative ecological reserves an emphasis is placed on diversity. Attempts are made to include as many as possible of the natural history themes and associated biological communities that exist in a particular sub-region. Before a reserve is classified as representative a decision must be made that the reserve is of sufficient size and the included communities large enough to exist as self-functioning natural ecosystems. Once a reserve is classified as representative the management plan will focus on strategies that permit ecosystems to continue to evolve in a largely unimpeded manner. In some instances, management activities such as grazing and controlled burning may be necessary to simulate historical conditions so that representative ecosystems are maintained. Similarly management strategies may be required to maintain special features included in representative reserves.

Special ecological reserves are usually selected on the basis of their unique or exceptional biological or natural physical features. Once a reserve is classified as "special", the management plan will focus on strategies required to protect those resource features which make the reserve "special".

2.2 The Role of the Rumsey Ecological Reserve

This section describes the specific role of the RER within the system of protected areas in Alberta.

The ecological value of the RER lies mainly in its representation of non-sand plain aspen parkland, with a good variety, quality and extent of habitats, as opposed to special features. Its landscape includes good representation of hummocky moraine, wet meadow, shallow marsh, lush fescue grasslands, drier aspen woodlands and alkaline and slightly alkaline wetlands. A variety of rare animals is found in the RER (eg. Baird's Sparrow) as well as plants at the northern or southern limits of their ranges.

Much of the aspen parkland has very productive soil and has as a result been extensively modified into crop land. The Rumsey Block has strongly rolling topography making it impractical to cultivate which has helped preserve the area.

Overall, the preservation of the landscape and ecosystems of the area is the principal role of the RER as a protected area. Heritage appreciation and outdoor recreation are of secondary importance, and will be accommodated (but not promoted) if they do not conflict with the preservation objectives or interfere with the leaseholder's operations. The RER is not a site where Tourism objectives can be met, to ensure the preservation objective remains paramount.

3.0 OVERVIEW

3.1 Location and Regional Setting

The RER is located in south central Alberta about 39 km south of Stettler and about 50 km north of Drumheller (Map 1). Secondary Highway 589 lies on the north boundary of the RER and Primary Highway 56 is located between 1.6 to 3.2 km west of the west boundary.

The RER is located in the northern part of the Rumsey Block, which includes the Rumsey Natural Area, located generally south of the ecological reserve.

3.2 Administrative Setting

The RER is located in the Central Region (headquarters - Red Deer) of Public Lands Services of the Dept. of Agriculture, Food and Rural Development.

The RER is located in the Parkland Corporate Region (headquarters - Red Deer) of the Dept. of Environmental Protection. The southern edge of the RER is located two miles north of the boundary between the Parkland and Bow (headquarters - Calgary) Administrative Regions. (The boundary, in this area, is the same as the boundary between the County of Stettler and Starland County.) The Rumsey Natural Area extends into both the Parkland and Bow Administrative Regions, a situation requiring cooperation between the two regions.

The RER lies within the County of Stettler.

3.3 Legal Status and Area

The ecological reserve, as established by Order-In-Council 511/90, is 3,431.856 hectares (8,480 acres) in area. The legal land description is:

NW Section 14, Sections 15, 16, 17, 20, 21, 22, 23, 28, 29, 30, 31, 32, 33, TP.34, Rge. 19, W4M

See Map 3

3.4 Boundary Definition

The boundary of the RER was determined by the limits of public land on its west, north and east sides (Map 4). The RER is the northern 18.7% of a remnant 18,390 ha area of aspen parkland on public land, referred to as the Rumsey Block, which has been of interest for protection of this landscape type for several decades. The south boundary was determined by the area available and suitable for protecting a representative example of the Central Parkland Natural Sub-region. South of the RER grassland areas tend to become more dominant relative to aspen poplar as the landscape goes through a transition zone between the Central Parkland and the Northern Fescue Sub-regions.

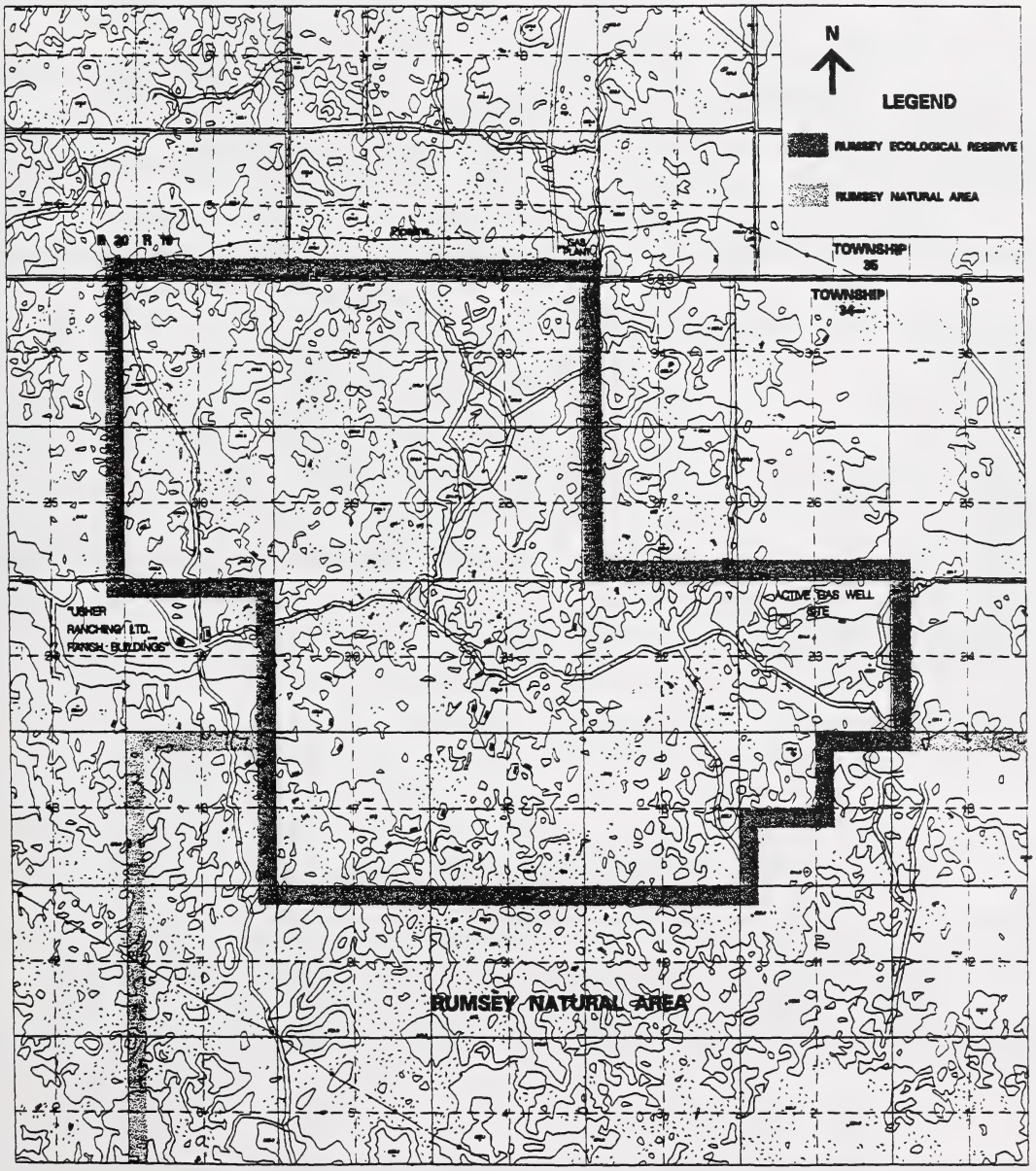
3.5 History of Reserve Designation

The ecological reserve was identified and proposed for its present status in reports prepared in 1977 (Achuff and Wallis) and 1979 (Alberta Ecological Survey). An assessment of the ecological values of the overall Rumsey block was also conducted (Bradley and Bradley, 1977). Prior to designation of the ecological reserve, a biophysical inventory of the candidate area was prepared in 1982 (Fehr, 1982), and an additional biophysical overview study was prepared in 1986 (Cottonwood Consultants).

The process leading to designation of the RER involved an open meeting with the public by the Advisory Committee on Ecological Reserves and Wilderness Areas. This meeting was held in Big

RUMSEY ECOLOGICAL RESERVE

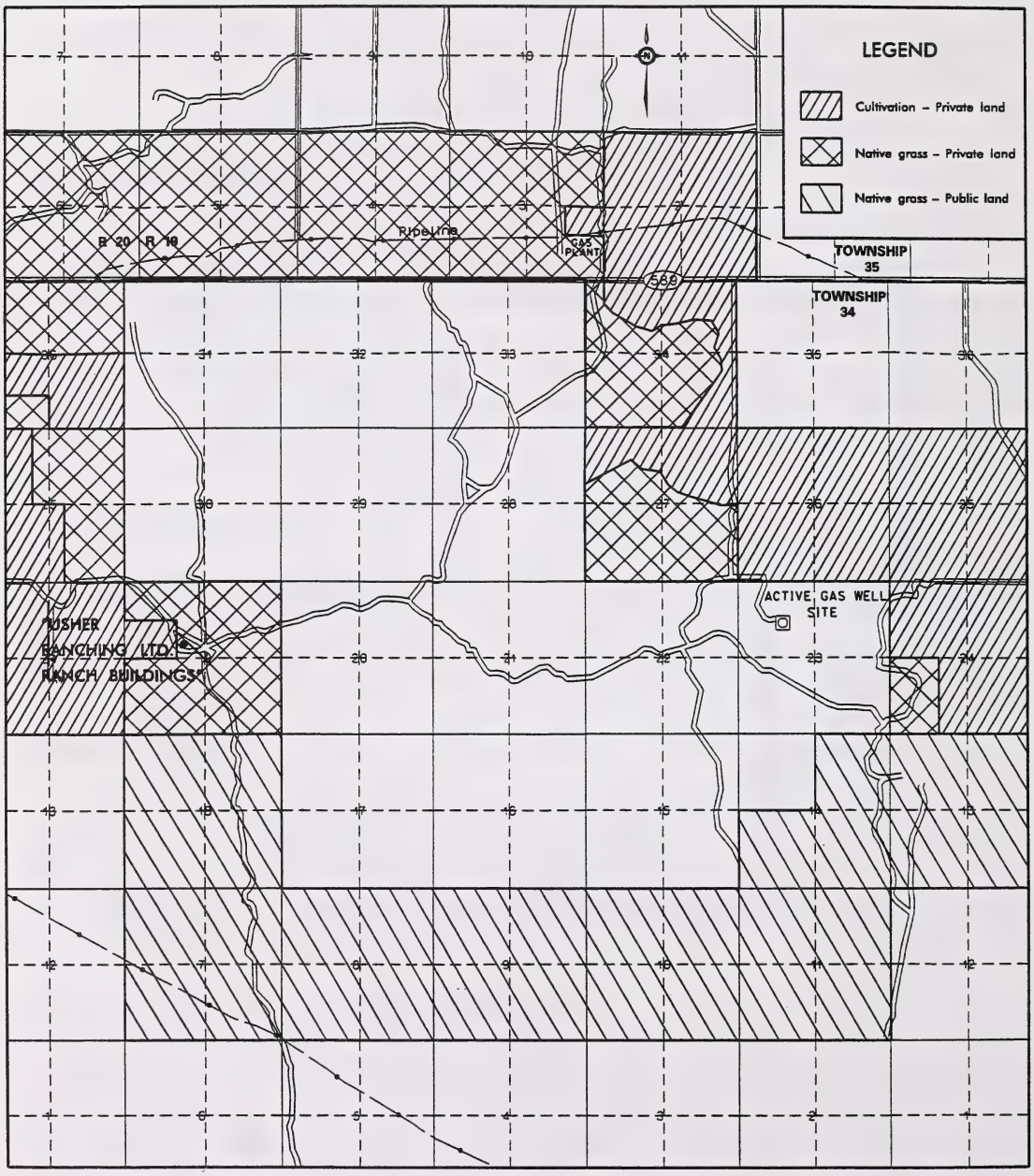
AREA 8,480.00 ACRES (3,431.86 HECTARES)



Map 3. Ecological Reserve Boundaries

RUMSEY ECOLOGICAL RESERVE

AREA 8,480.00 ACRES (3,431.86 HECTARES)



Map 4. Adjacent Land Ownership and Uses

Valley on August 24, 1988. It was widely advertised and invitations were also sent to numerous organizations and individuals. Following this meeting the Advisory Committee recommended in its 6th Annual Report that the RER be established. The ecological reserve was established on September 13, 1990. Shortly thereafter, on October 9, 1990, an official dedication ceremony was held at the RER.

3.6 Biophysical and Historical Resources

An Environmentally Significant Areas study was completed for the Counties of Lacombe and Stettler (Sweetgrass Consultants Ltd., 1988). This study identifies the RER as lying within the Rumsey South environmentally significant area, which is rated as having international and national significance.

(The material in this section is adapted from Cottonwood Consultants, 1986; Fehr, 1982 and Bradley and Bradley, 1977.)

Landscape units in the reserve are shown on Map 5.

3.6.1 Bedrock Geology

The RER is underlain by the Paskapoo and Edmonton formations, part of the eastern flank of the Alberta Syncline. No bedrock outcrops are known in the RER, as the bedrock is buried beneath about 15 m to 30 m of glacial deposits.

3.6.2 Surficial Geology, Topography and Hydrology

A principal feature of the RER is a type of landscape referred to as knob and kettle topography. This characterizes most of the landscape of the RER. The topography is one of a complex of small depressions and hills which is responsible in large part for the biological diversity and visual interest of the area.

This type of landscape is also referred to as a hummocky disintegration moraine. This is the result of the ice mass at the end of the last glaciation melting into numerous smaller blocks and depositing its load of debris in an irregular pattern over a wide area. The glacial debris consists of a mixture of local bedrock and material transported from the Canadian Shield.

In the northern part of the RER a number of the hills are flat on top and are referred to as moraine plateaux. These were formed in part by the deposition of material (particularly silt and clay) in small ice-bound lakes.

The local relief ranges up to 15 m. Slopes on the knobs are often steep, sometimes with a gradient of up to 20%. Many of the depressions have no surface drainage from them.

Another surface feature formed during glacial retreat is found in the southwest part of the RER. This is a glacial spillway, a former channel which conducted large volumes of meltwater from the ice. Deposits in the spillway are characteristically sand and gravel. At the head of the spillway is a small esker, a feature formed by deposits of sand and gravel left by a stream running on or beneath the ice surface. The spillway is presently the only surface drainage conducting runoff from the RER. It drains west into Snake Lake, then into Big Valley Creek and the Red Deer River.

3.6.3 Soils

The RER lies within the Dark Brown Soil Zone. Typically, on the better drained sites a 150 mm deep dark brown organic layer is found. Black chernozemic soils are found under most stands of aspen poplar.

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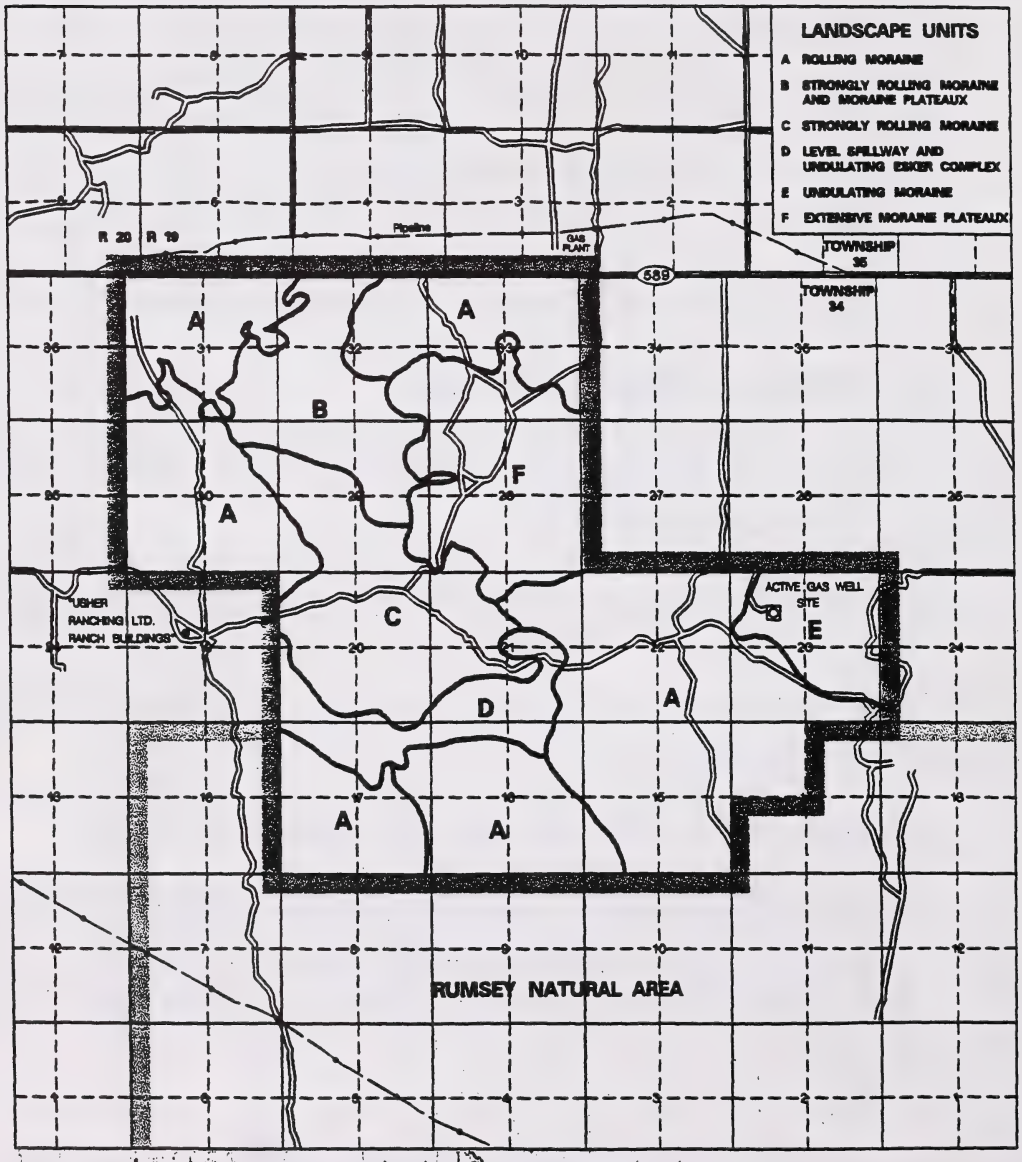

Map 5. Landscape Units
(from Cottonwood Consultants Ltd., 1986)

The depression areas are water-saturated for much of the year, and also receive sediment transported by runoff from the surrounding hills. The lack of oxygen in the soil for much of the year and other conditions results in soils referred to as rego-humic gleysols.

The parent material is glacial till.

3.6.4 Climate

As one would expect in central Alberta, winters at the RER are long, cold and dry while summers are short and moderately warm. Temperatures during the course of a year can range from -40°C to +35°C. Prevailing winds are from the west and northwest. The RER is at the northern edge of the region influenced by warm southwest chinook winds. The average annual precipitation is about 450 mm, the most precipitation occurring as rainfall during June and July. Snow can also contribute significantly to annual precipitation. There is little or no water surplus in any season due to low humidity, frequent high winds and low precipitation.

3.6.5 Vegetation

The RER is located in the Central Parkland Subregion of the Parkland Natural Region. The Central Parkland is a transition zone between the boreal forest to the north and the grasslands to the south. The Central Parkland is characterized by two major vegetation types: groves of aspen poplar on moist, sheltered locations intermixed with fescue grasslands on drier, more exposed sites. In the RER about one-half of the area is fescue grassland, one-quarter is other grassland communities and the remaining quarter is aspen poplar groves.

The knob and kettle topography creates a range of microclimates and dozens of depressions, many of which often hold water for at least part of the year. The result is a complex mosaic of woodlands, shrublands, grasslands and wetlands. The wetlands include meadows, shallow marshes, deep sloughs and saline sloughs, all of which support different water-loving communities. Around each wetland is typically located a ring of willows which in turn is commonly partially ringed by aspen poplar.

Wroe (1971) describes eight plant communities in the "Big Valley natural area" (NW14-34-19-W4M), which lies in the southeast corner of the RER. The following descriptions of the communities can be reasonably extended to the rest of the RER, at least for a general understanding of reserve vegetation:

- *Carex atherodes* community
  - 11.1% of area
  - sedge community occupying depressions which hold water for at least part of the growing season
- *Salix petiolaris* community
  - 6.8% of area
  - willow community in dense rings around sloughs
- *Populus tremuloides* community
  - 9.1% of area
  - aspen poplar community, usually incomplete rings around depressional areas
- *Festuca scabrella* community
  - 50.9% of area

- rough fescue community, the major vegetation type

- *Symphoricarpos occidentalis* community

  - 8.3% of area
  - buckbrush community

- *Stipa spartea* var. *curtiseta* - *Festuca scabrella* community

  - 11.0% of area
  - porcupine grass and rough fescue community
  - dry southfacing slopes
  - cover sparser than rough fescue community

- *Stipa spartea* var. *curtiseta* - *Artemsia frigida* community

  - 2.3% of area
  - porcupine grass and pasture sage community
  - south-facing hilltops and ridges

- *Koelaria cristata* - *Agropyron smithii* community

  - 0.5% of area
  - June grass and western wheat grass community
  - sparse vegetation found on soils with a high level of sodium salts

A number of plants are found in the RER that are described as uncommon:

Allium geyeri	onion
Oxytropis deflexa	reflex locoweed
Poa juncifolia	alkali bluegrass
Barbarea orthoceras	American wintercress
Scholochloa festucacea	spangletop grass
Carex scirpoidea	single spike sedge
Salix pseudomonticola	mountain willow
Carex sartwellii	Sartwell's sedge
Sphenopholis intermedia	wedge grass
Carex arthrostachya	slender beaked sedge

The following species found in the RER are described as being at the southern edge of their ranges:

Petasites sagitattus	arrow-leaved coltsfoot
Senecio congestus	marsh ragwort
Scolochloa festucacea	spangletop grass
Carex siccata	silvertop sedge
Salix petiolaris	basket willow
Carex bebbii	Bebb's sedge

Plants described as being at the northern edge of their range in the RER:

Carex filifolia	thread-leaved sedge
Eriogonum flauum	yellow umbrella plant
Zigadenus venenosus	death camas
Haplopappus lanceolatus	lance-leaved goldenweed

3.6.6 Wildlife

There is a wide variety of wildlife in the RER, in part a function of the diversity of habitats: woodlands, shrublands, grasslands and wetlands. There is variability in the condition of these habitats, which also contributes to species richness. For example, different species are associated with different degrees of grazing intensity in the grasslands, and the different types and ephemeral nature of wetlands also drives species diversity. Known or expected to occur in the RER are 91 species of birds, 37 species of mammals, four species of amphibians and two species of snake.

Long-term drought cycles can result in most of the waterbodies in the RER drying up, with the effect that some species dependent on water bodies become rare or absent during drought periods.

It should be recognized that several species are known to have been extirpated from the RER area and the prairies generally by the late 1800's: bison, elk, grizzly bears and wolves.

The grasslands support wildlife associated with the fescue grassland as well as more broadly distributed species. Dense fescue grass supports the thirteen-lined ground squirrel, upland sandpiper, Sprague's pipit and Baird's sparrow. While restricted to a few sites, heavily grazed areas are favoured by Richardson's ground squirrel and horned lark.

Woodland species include more than 20 species of breeding birds, as well as white-tailed deer, mule deer and deer mice. Red-tailed hawks are the most common raptor nesting in the RER.

The sloughs and other wetlands are rich in wildlife, especially waterfowl. Seasonal wet meadows provide habitat for LeConte's sparrow, Savannah sparrow and the rare sharp-tailed sparrow. Moist depressions support meadow voles and northern pocket gophers. The open alkaline shores around sloughs in the southwest part of the RER provide habitat for shorebirds such as the American avocet, marbled godwit and willet. Sloughs also support boreal chorus frogs and wood frogs. In 1971 the northern leopard frog was considered abundant (Wroe, 1971).

Animals at the southern limits of their range found in the RER include wood frog, hermit thrush, dark-eyed junco, Tennessee warbler and sharp-tailed sparrow. Moose move into the RER from the north and west and are sighted frequently; while pronghorned antelope, which move in from the south and east, are sighted occasionally. The prairie vole, a rare species, is also found in the RER. Birds considered uncommon found in the RER include: Baird's sparrow, upland sandpiper, sharp-tailed sparrow and Cooper's hawk.

3.6.7 Aesthetics

A key contributing factor in the creation of the perception of aesthetic quality in landscape is visual variety. This element is well-expressed in the RER in the complex mosaic of waterbodies, wetlands, hills and patterns of aspen groves and shrubbery. The rolling terrain creates a visual experience that could be likened to being in a small boat riding ocean swells: a panoramic view of the landscape from the tops of hills, followed by an enclosed, limited view in a nearby depression. Visual interest is found in the foreground and middleground distance zones. There are no features of visual prominence at distances of more than about 1 km due to the general flatness of the terrain, despite local relief. However, fairly extensive views can be obtained from the higher plateaux in the north area of the RER.

Generally, in almost any location in the RER there is little, if any, evidence of man-made intrusions in the landscape. This visually natural-appearing landscape, combined with relatively clean air and quiet, fosters a sense of wilderness.

In places, facilities connected to the ranch operation are visible. These include corrals, fences and an old barn. While it is recognized as a culturally-based response, most observers would probably perceive these as in keeping with the character and heritage of the ranching lifestyle which is so intertwined with this landscape.

Visual intrusions include the operating gas well in the RER. However, this is at a location mostly hidden from view by trees. The presence of Secondary Highway 589 on the northern edge of the RER is something of an intrusion, in terms of sound and visual impacts. However, the tree cover and rolling terrain restricts this impact to a zone probably less than 100 - 200 m south of the right-of-way fence.

3.6.8 Historical Resources

No inventory of historical resources has been conducted by qualified professionals in the RER. However, several teepee rings, cairns and other stone features have been noted by the leaseholder. The RER is considered to have high potential for the occurrence of archaeological resources (Newton, 1996). A study of the area by an archaeologist could reveal other stone feature sites and other site types.

There are no Historical Period sites (standing structures, etc.) registered in the Historic Sites Service inventory for the subject area.

The subject area is considered to have medium potential for the discovery of paleontological resources. The region is underlain by the Cretaceous Period Scollard Formation, which is known to contain fossil vertebrate remains, particularly dinosaurs.

3.6.9 Special Features Summary

While a number of features in the RER can be identified that contribute to its uniqueness, the value of the RER is found most particularly in its ability to provide representation of typical qualities of the Central Parkland. The variety, extent and quality of the natural habitats, all in close proximity, is the RER's central attribute.

Elements of the RER landscape that are of particular value include the lightly grazed grasslands generally, the ungrazed quarter section and the numerous wetlands and saline wet meadows. The extensive woodlands and the moraine plateaux, neither cultivated nor overgrazed, are also important.

The RER is also notable for the presence of uncommon plant and animal species. However, their locations have not been identified with enough accuracy to be mapped.

3.7 Land Uses

3.7.1 Dispositions

Grazing Lease

- Entire area of reserve, except for one quarter section, is under a grazing lease to Usher Ranching Ltd..

- The grazing lease disposition is normally granted for ten-years and is assessed for renewal at the end of the lease period. It is expected the lease will continue to stand into the foreseeable future in accordance with Section 6(3)(e) of the WAERNA Act, provided the terms and conditions of the lease and this management plan are met. The lease is administered by Public Lands Services of the Department of Agriculture, Food and Rural

Development. The lessor is the Land and Forest Service of the Department of Environmental Protection.

- One quarter section (NW14-39-19-W4M) is not subject to dispositions. This parcel was removed from the Usher Ranching Ltd. grazing lease in 1967 to serve as a research area.

- The RER is the land base of part of an overall rotational grazing system of Usher Ranching Ltd., including grazing during the dormant season. The area is enhanced through close monitoring of grazing and grass cover to ensure there is always a good stand of new grass and sufficient carryover from previous years to provide optimum winter grazing. In addition, the carryover of grass cover holds the snow which in turn provides the moisture required to start a strong new growth the following summer. The lightly grazed areas are hayed every 4 - 5 years where possible. This rejuvenates the growth of the grasses and so aids in maintaining biological productivity levels.

The range is in good to excellent condition overall with small areas of fair condition (5% in total) based on the range evaluation system used by Public Lands Services (Eastern Slopes Rangeland Seeds Ltd., 1994). The cattle prefer to graze the grass stands on the south slopes and hill crests so many of the stands with a southerly aspect are fairly heavily grazed while the remaining stands, primarily fescue grasslands, are only lightly grazed.

The carrying capacity was set by Alberta Lands and Forests in 1962 at 28 acres/head/year. This has been re-confirmed over the years based on site inspections.

The perimeter of the RER is fenced, except the outer edges of sections 17 and 20 which abut the leaseholder's deeded and other leased property. Fences divide the RER into eleven separate fields.

There are about 29.5 miles (47.5 km) of fenceline in and around the RER. Most runs through open grassland, but about 3.8 miles (6.1 km) of fence cuts through aspen poplar groves (which in many cases have encroached upon fencelines). Brush (primarily aspen poplar) is periodically cleared along the fences in these areas to provide for fence maintenance. The total area involved is about 25 acres (10 ha) at several sites scattered around the RER. The typical practice is for the brush to be bulldozed along the fence initially to establish a clear corridor. There is usually a surge of aspen suckers the following year and this is controlled by spraying a herbicide that is selective for broad-leaved plants for the following one or two years which usually controls suckering adequately for five to ten years.

Three water wells for livestock are present. Compared to most of the RER, heavy grazing occurs around the wells when they are utilized in years when the sloughs are dry.

Facilities associated with ranching operations on the RER are limited, consisting of three enclosures for storing hay.

Fence and field locations are shown on Map 6. (Existing Development).

Access for ranch operations within the RER is accomplished by means of a few vehicle trails. These are mostly unobtrusive unimproved prairie trails, while a few are partially graded in some locations, particularly those required for hauling hay.

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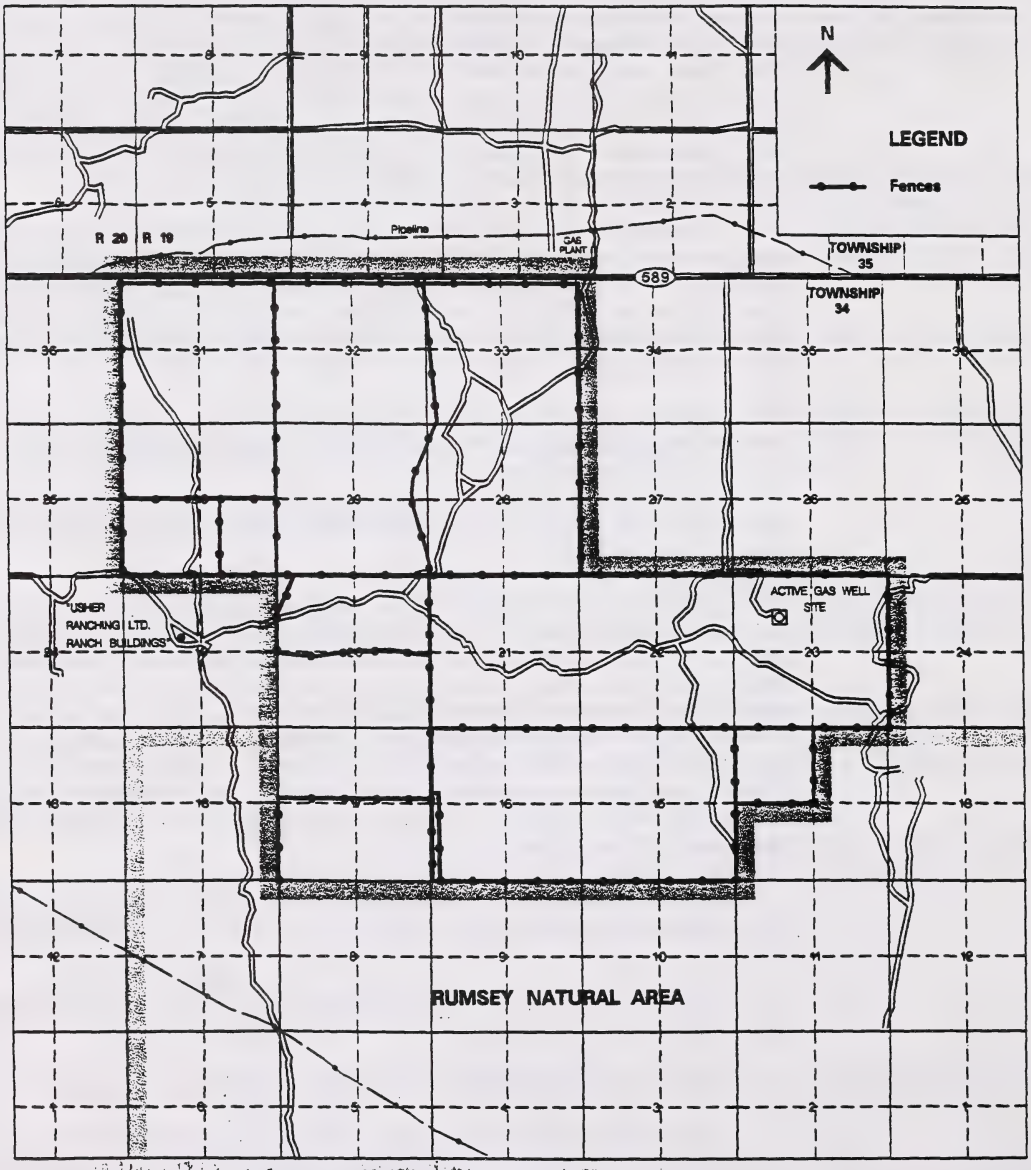


Map 6. Existing Development

Ducks Unlimited Easements

- There are two easements to Ducks Unlimited in the RER for waterfowl habitat enhancement projects that were undertaken in the 1950's and 1960's, but proved to be unsuccessful. These easements have no expiry date.

- The projects involved excavating ditches to collect water from smaller potholes in an attempt to create larger permanent waterbodies. Evidence of the ditches can be found in the RER.

Petroleum and Natural Gas

There is one active well in the RER, which pre-dates the reserve designation. This is a gas well which is connected by a pipeline extending off the reserve, along with a service road (see Map 6).

Since designation of the reserve one well site has been abandoned and reclaimed with native grass, along with its access road.

Alberta Power Ltd. (EZE 2961)

- an easement on the north edge of NE33-34-19-W4M
- area: 0.08 hectares

AGT Ltd. (LOC 5069)

- a license of occupation for a narrow strip along the north edge of NW31, NE31, NW32, NE32 and NW33 all in 34-19-W4M.
- area: 6.033 ha

County of Stettler (RRD8311503)

- right-of-way for Secondary Highway 589
- area: 14.46 ha

3.7.2 Recreation

Hunting, mainly for deer, is the only form of recreation known to have occurred in the area of the current reserve with any regularity. Since designation of the RER, hunting has been prohibited as stipulated under the terms of the WAERNA Act.

There are occasional visits to the area by naturalists.

3.7.3 Historical Land Use

The general region of the RER was used by bison for wintering, so it is believed natives inhabited the area to have access to this resource. The archaeological features in the RER (eg. teepee rings) point to this.

Ranching began in the area when the Imperial Ranching Co. used the area as open range (that is, without charge). Following are important milestones in the history of the area:

1907 - Dominion of Canada legal land survey completed

1911 - Grazing rights purchased by Burns ranching interests from Imperial Ranching Co.

1917 - Tom Usher and Jim Walters acquired the lease

1937 - Lease divided and Tom Usher granted grazing lease which now encompasses the ecological reserve.

1975 - Usher Ranching Ltd. established

There are two different schools of thought as to the changes that have occurred in the landscape of the RER over the past 100 - 200 years, with particular reference to the extent of grassland versus tree and shrub cover. Since the early 1900's, the proportion of the RER occupied by aspen poplar has increased. The proportion is reported to have been less than 1% in 1907, increasing to 15% by 1979 (Fehr, 1982). Three points are clear: (1) The landscape has changed, for whatever reason, (2) In one way or another, man has played a role in this change and (3) It may never be known what, exactly, this role was.

One school of thought holds the apparent limited cover of aspen poplar observed in the early 1900's was a temporary and atypical situation and that the normal condition would be something approximating that observed today. The bases of this argument are: (1) bison grazing was light and seasonal, hence not an important brush control factor, (2) drought conditions in the late 1800's restricted aspen growth and resulted in conditions conducive to fire, which further controlled aspen growth and coincides with (3) the period of increased settlement in the late 1800's, which contributed to abnormally frequent fires.

The other school of thought holds the area was heavily used by bison, thereby keeping aspen growth limited. It is also postulated that natives used or caused fires frequently that resulted in the area being in a grassland condition. Consequently, the current pattern of woody vegetation is the result of the removal of bison and the elimination of fire from the system.

This discussion poses interesting questions that have implications for management of the ecological reserve.

3.7.4 Surrounding Land Uses

Land on the west, north and east side of the RER is primarily in private ownership. (See Map 3). Most of this land is uncultivated, due to the rough terrain, and the landscape is generally similar to the ecological reserve. About four kilometers of the RER boundary abuts cultivated land. The north boundary abuts Secondary Highway 589, a paved highway. Adjacent to the RER on its west side is a section (section 19) of deeded land owned by Usher Ranching Ltd. It is on this land that the ranch buildings and ranch foreman's residence are located. A gravel road in a road allowance provides access to the ranch buildings from Highway 56. The gravel road abuts the RER at the southwest corner of Section 30.

Land south of the RER is public land subject to grazing leases within the Rumsey Natural Area. At the southeast corner 3.2 km of the RER boundary abuts a grazing lease used by the Jake's Butte Grazing Association. The balance of the boundary crosses land also leased to Usher Ranching Ltd. This land is subject to similar management practices as the RER and in some places there is no fence on the boundary so the RER land is managed in common with land outside it.

The landscape to the south of the RER is similar to that within it, although the grassland component becomes more dominant. The dividing line (at least for mapping purposes) between the Parkland and Grassland Natural Regions is placed just south of the RER.

The Rumsey Natural Area is subject to a policy document referred to as the Rumsey Parkland South Regionally Integrated Decision (RID). This is the most local-in-scale plan in the hierarchy of plans prepared through the integrated management planning process. The RID was prepared as a collaboration of provincial government agencies with public consultation.

The overall management goal of the RID is:

> *To preserve and protect the Rumsey Aspen Parkland ecosystem while allowing for responsible use of its resources.*

The RID is described in greater detail in Section 7.0, Surrounding Lands.

3.7.5 Research

The "Big Valley natural area" (an informal local name only; not a designated natural area) (location: NW 14 Sec. 34 Rge. 19 W4M) has been used in the past as a site for field studies by students at Olds College. This area was studied in detail by Wroe in 1971 (Wroe, 1971). While it is in the RER, it is not in the Usher Ranching Ltd. lease.

In 1995 a three-year research project commenced in the RER to study the impact of cattle grazing on habitat quality for breeding birds in the aspen parkland. The research is being conducted by a doctoral student in the Department of Biological Sciences at the University of Alberta.

A scientist from the Dept. of Biological Sciences at the University of Alberta is also studying differential rates of dispersal of gall-forming insects and of their natural enemies. Field work for this study in the RER is to conclude in the fall of 1997.

These projects have been permitted under the standard procedures for research and collection in ecological reserves. The above listing does not include studies or monitoring being carried out as part of the implementation of this plan.

In 1994 a range inventory was prepared for the Usher Ranching Ltd. grazing lease (Eastern Slopes Rangeland Seeds Ltd., 1994), both in the RER and the Rumsey Parkland South.

Other than the biophysical assessments of the Rumsey Block leading to designation of the ecological reserve and the above noted studies, no other research projects are known.

3.7.6 Environmental Education

The visits to the "Big Valley natural area" by students of Olds College as part of their course work could be described more as environmental education than research. The RER is visited occasionally by organized naturalists' groups and has been used for field trips by the Friends of Environmental Education Society of Alberta in courses for educators from across Canada.

4.0 MANAGEMENT ISSUES

This section provides a list of the management issues which were identified prior to preparation of the management plan. The issues were identified by the public at large, interest groups, the Steering Committee on Ecological Reserves (now defunct), the grazing leaseholder and other members of the planning team. These issues are addressed in this plan in Section 6: Management Guidelines.

a) Promotion of the RER could lead to increased public use that would result in unacceptable impacts on the ecological reserve or the operations of the leaseholder. Even if the RER is not promoted, the very existence of a special designation will attract the interest of individuals and organizations.

b) Public access to the RER increases the risk to the leaseholder of fire, littering, damage to range facilities, physical damage to the RER, disturbance of cattle (including theft), public safety and liability. The threat of fire is a very major concern to the leaseholder as a wildfire would likely be very difficult to control and could have catastrophic effects on the RER and the operations of the leaseholder and neighbours.

c) The WAERNA Act prohibits hunting unless required for the management, preservation and protection of an ecological reserve. Fish and game associations have expressed strong opinions against the exclusion of hunting, particularly for deer, from the RER. Deer numbers are to be monitored annually and this information will be part of the equation used to determine if, and when, hunting may be required to control deer populations.

d) The leaseholder wants to continue with past practices of ranch operations, but with the flexibility to adjust operations to suit conditions. Practices required include construction of range improvements such as wells, dugouts and fences (if needed) and maintenance and use of existing trails for general access and, in some cases, hay hauling.

The Chairman of the Steering Committee on Ecological Reserves advised in a memorandum to the Director, Southern Region, Provincial Parks Service, dated May 8, 1992:

... the area has been managed under grazing lease by the Usher family since 1917; the landscape and its associated natural communities and habitats are, for the most part, in excellent condition. It is, therefore, anticipated that little change is required to the existing management practices as conducted historically by the Usher family. An important part of the management planning team's work will be to document those existing management practices as conducted over both the short and the long term that have been found to work the best to maintain optimum conditions in the reserve.

e) The leaseholder wants to maintain a corridor free of tree growth along fences. This makes fence maintenance easier and provides fence visibility to wildlife and livestock.

f) Tree and shrub cover is increasing, thereby reducing the area of fescue grassland and possibly altering the biodiversity of the RER.

g) There is an existing gas well and pipeline in the RER. These are permitted by the WAERNA Act to remain until the resource is depleted or the lease or other interest expires and is not renewed by the Minister of Environmental Protection. Impacts of these operations on ecological conditions should be minimized, while recognizing the practical needs of well maintenance and operation.

h) Potential impacts of adjacent land uses on the RER must be identified.

i) The status and future of the ungrazed, unleased quarter-section must be determined.

j) Scientific research is an important purpose for ecological reserves and a protocol to accommodate and encourage it while considering the leaseholder's operations and resource protection is required.

k) Means are required to determine and monitor the presence and extent of weeds and non-indigenous species and to identify the reasons for their presence and means for removal.

5.0 VALUES, GOALS AND OBJECTIVES

This section focuses on the specific reasons for the selection and designation of the ecological reserve. The values, goals and objectives described in this section provide a basis for the management guidelines contained in subsequent sections of the plan.

5.1 Values

For purposes of ecological reserve management plans the term "values" is used to describe the biophysical features which an ecological reserve was established to protect. The values for the RER are presented below in three levels: (1) A broad value statement, (2) a core value and (3) support values.

Value Statement:

The RER protects 18.7% of the largest remaining area of non-sand plain aspen parkland in the world, the Rumsey Block. A history of good management by the grazing lessee has resulted in the natural habitats in the RER remaining in generally excellent condition.

Core Value:

The following core value is the primary reason for the establishment of the RER:

The RER provides representation of the Central Parkland sub-region of the Parkland Natural Region. The RER contains a variety of well-preserved representative natural habitats including grassland, woodland, shrubland and wetlands, and their remaining indigenous wildlife species.

This single core value is identified for the RER due to its role in the ecological reserves system as a representative ecological reserve, one which protects landscapes and ecosystems typical of a biogeographical zone. The overriding role of this management plan is to provide an overall strategy to manage this representative landscape and ecosystem. This point is emphasized because, while the RER does contain special features, which may require special management, the overall thrust of management will be to maintain the representative value of the RER.

Support Values:

The following values are specific resource features of the RER which contribute to its core value (Cottonwood Consultants, 1986):

- *"Non-sand plain aspen parkland":* The RER protects a representative aspen parkland landscape that has developed on surficial deposits described as hummocky disintegration moraine. (This contrasts with the Wainwright Dunes Ecological Reserve which is characterized by a landscape of sandy surficial geology.)

- *"Extensive Natural Groveland":* The RER lies within the groveland portion of the Central Parkland sub-region. This landscape is characterized by a mosaic of grasslands and aspen groves, indicative of the transition between the Northern Fescue grasslands to the south and the more extensive aspen woodland to the north. This is a landscape of provincial significance.

- *"Extensive Woodland Along North Boundary":* These aspen woodlands contribute to the extent of this type of representative habitat found in the RER.

- *"Numerous Wetlands":* Particularly through the centre of the RER there are numerous wetlands, including wet meadows, alkaline marshes and shallow marshes, providing representative examples of these habitats.

- *"Ungrazed Quarter Section":* One quarter section was withdrawn from the grazing lease for research purposes and has not been grazed since 1970. This area provides a valuable benchmark for study.

- *"Species Significant from a Regional and Provincial Perspective":*

Baird's sparrow	*Ammodramus bairdii*	(Alberta Yellow A List)
upland sandpiper	*Bartramia longicauda*	(Alberta Yellow A List)
sharp-tailed sparrow	*Ammodramus caudacutus*	(Alberta Green List)
Cooper's hawk	*Accipiter cooperii*	(Alberta Yellow B List)
prairie vole	*Microtus ochrogaster*	(Alberta Status Undetermined List)
loggerhead shrike	*Lanius ludovicianus*	(Alberta Yellow A List) – also considered "threatened" by the Committee on the Status of Endangered Wildlife in Canada)

- *"Animals at the Southern Edge of Their Range":*

wood frog	*Rana sylvatica*
hermit thrush	*Catharus ustulatus*
dark-eyed junco	*Junco hyemalis*
Tennessee warbler	*Vermivora peregrina*
sharp-tailed sparrow	*Ammodramus caudacutus*

- *"Plants at the Southern Edge of Their Range":*

arrow-leaved coltsfoot	*Petasites sagitattus*
marsh ragwort	*Senecio congestus*
spangletop grass	*Scolochloa festucacea*
silvertop sedge	*Carex siccata*
basket willow	*Salix petiolaris*
Bebb's sedge	*Carex bebbii*

- *"Plants at the Northern Edge of Their Range":*

thread-leaved sedge	*Carex filifolia*
yellow umbrella plant	*Eriogonum flavum*
death camas	*Zigadenus venenosus*
lance-leaved goldenweed	*Haplopappus lanceolatus*

- *"Uncommon Plants of the Central Parkland":*

American wintercress	*Barbarea orthoceras*
mountain willow	*Salix pseudomonticola*
reflexed locoweed	*Oxytropis deflexa*
single spike sedge	*Carex scirpoidea*
Sartwell's sedge	*Carex sartwellii*
wedge-grass	*Sphenopholis intermedia*
slender beaked sedge	*Carex arthrostachya*
alkali bluegrass	*Poa juncifolia*

- *"Geological Features":*

  - *Large flat-topped moraine plateaux occur in the north part of the RER. Level fescue grasslands on the plateaux support populations of uncommon fescue grassland birds.*

  - *Esker and esker-like ridges adjacent to glacial meltwater spillway in southwest corner.*

5.2 Goals

For purposes of ecological reserve management plans, goals are defined as broad statements of management intent that describe the overall vision for a reserve. The goals serve as a foundation for more specific management objectives presented subsequently:

The following goals provide broad direction for the management of the RER:

1. **To maintain the mosaic of natural habitat needed to sustain the remaining ecological and genetic diversity of the ecosystem in a manner which will allow natural processes to evolve.**

2. **To utilize activities such as cattle grazing and brush control to provide partial compensation for components and processes of the ecosystem already displaced (bison, wildfires).**

While these goals provide overall guidance for management of the RER, additional guidance will be provided in connection with the support values through the statement of objectives in the following section.

One elaboration is provided with respect to the above goals. An important reason for the dedication of the RER is the excellent condition of the landscape due to good management by the Usher family since 1917.

A major purpose of this management plan is to describe the range management practices that have been carried out to date, in order to ensure these good practices continue into the long-term future. It is recognized, however, that there must be some flexibility both in the management plan and on the part of the leaseholder, in order to ensure continued protection of the ecosystem and to sustain a viable cattle operation.

5.3 Objectives

Objectives are more detailed refinements of the goal statements from which can be developed the management guidelines, and which facilitate the protection of the RER's representative features. As opposed to the broader goal statements, the objectives, where possible, are written so that they identify specific targets to achieve.

The objectives are organized according to the four general objectives of the Recreation and Protected areas program: preservation, heritage appreciation, outdoor recreation and tourism (as defined in Section 2.1.4).

5.3.1 Preservation Objectives

Ecological Reserves are established primarily for the preservation of natural heritage and biological resources. Consequently, of all the objectives listed below, the preservation objectives have the highest priority. The objectives are closely derived from the core and support values and the goals for the RER.

Primary Objectives:

- *To maintain a mosaic of grasslands, wetlands, water bodies, shrublands and woodlands in order to sustain ecological diversity within the RER.*

- *To maintain the grasslands, wetlands, water bodies, shrublands and woodlands in excellent condition capable of providing habitat to the full range of the remaining species associated with the Central Parkland sub-region.*

Secondary Objectives:

- *To protect from disturbance the features of geological interest, particularly the moraine plateaux and eskers.*

- *To protect the RER for purposes of research related to the management and protection of aspen parkland and its remaining suite of indigenous species of plants and animals.*

- *To encourage and accommodate scientific research that will contribute to knowledge of the natural structure and function of the ecosystem of the Parkland Natural Region in general, and the Central Parkland subregion in particular.*

- *To protect habitats of rare or sensitive species.*

- *To protect from disturbance archaeological features found in the RER.*

5.3.2 Heritage Appreciation Objectives

The term "heritage appreciation" is used to describe visits to a site where the purpose is to increase understanding of the particular environment at the site. This can be in either an organized group or independently, and includes the activities of environmental education, interpretation, information and orientation.

Heritage appreciation of Alberta's natural landscapes is one of the main reasons for the dedication of ecological reserves, but it is secondary to preservation.

Environmental Education and Interpretation Objectives:

- *To accommodate visits to the RER by organized groups and individuals to the extent there are minimal negative impacts on the RER landscape, wildlife or lessee operations.*

Information and Orientation Objectives:

- *To provide visitors (and potential visitors) to the RER with sufficient information to find their way to the RER, to understand the legislation and policies governing their activities and to understand the role and purpose of the RER and its management.*

- *To ensure the boundary of the RER is clearly identified.*

- *To attract to the RER only those members of the public whose interests are primarily appreciation of its natural history.*

5.3.3. Outdoor Recreation Objectives:

Outdoor recreation in the broadest sense includes a wide range of activities typically involving some form of interaction with the natural environment (and often focussed on meeting challenges the environment provides).

In the case of ecological reserves the only appropriate forms of outdoor recreation are those that have minimal impact on the landscape and involve appreciation and enjoyment of the natural qualities of the place. The following objectives serve to clarify appropriate activities:

- *To accommodate visits to the RER on foot only, solely for the appreciation and understanding of the natural environment.*
- *To accommodate visits to the RER in a fashion that results in minimal impacts on reserve values.*
- *To accommodate visits to the RER in a way that ensures minimal effects on leaseholder ranching operations.*
- *To ensure the public is advised of possible safety hazards in the RER.*

5.3.4 Tourism Objectives

Due to the significance and sensitivity of the RER, activities related to tourism and economic development will not be promoted or accommodated.

6.0 MANAGEMENT GUIDELINES

The following guidelines provide specific management direction for the RER. The management guidelines have the purpose of maintaining and protecting the natural features and ecological values of the RER. The guidelines are presented in two broad categories: The first deals with the management of the natural values and the second deals with the management of visitors and researchers.

6.1 Protection Of Natural Values

In the following sections general management directions are discussed first, followed by specific management activities.

6.1.1 Vegetation Values

As indicated by the values, goals and objectives previously presented, management of the RER will be oriented to maintaining a landscape mosaic of aspen woodlands, shrublands, wetlands and grasslands that is representative of the aspen parkland.

General Management Direction - Communities and Species

The RER consists of a patchwork of forest, grassland, shrubland and wetlands. Each of these vegetation types contributes to the biological diversity characteristic of the aspen parkland. The interaction of these communities as a function of pattern and edge effects is a key attribute of the aspen parkland. In recognition of this interaction of and relationship between communities, management will be more oriented to the mosaic as a whole, than to focussing on specific community types. Nonetheless, management guidelines in connection with specific community types are described below:

- Forests

  The RER landscape is characterized by a mosaic of aspen poplar groves, shrubbery and grasslands. The cover of aspen poplar is more continuous in the north portion of the reserve. The cover of aspen poplar is increasing throughout, thereby possibly altering the biological diversity found in the mosaic of community types, including the extensive edge effect habitat.

  Encroachment trends will be monitored by Public Lands Services using a quantitative, replicable methodology. Aerial photography at regular intervals (eg. five years) will be an important tool for this purpose.

  If the encroachment trend continues and it is shown to be altering biological diversity to an unacceptable degree, it will be necessary in the future to consider means by which the mosaic of aspen poplar groves, shrubs and grassland can be maintained.

  Should a situation arise where the aspen poplar are being impacted by an insect infestation or disease, the first choice will be to allow "nature to take its course". However, such situations will be studied carefully to ensure adjoining lands would not be adversely impacted by insect or disease problems that could be controlled within the RER.

- Grasslands

  The grasslands of the RER are generally in excellent condition due to years of good management. These grasslands, in common with grasslands elsewhere, evolved in the presence of large grazing herbivores, particularly bison. While not a perfect

substitute, grazing by cattle can provide habitats for the variety of native animals and plants adapted to various grassland conditions. Continued cattle grazing at appropriate levels is expected to help promote biological diversity in the RER.

- Shrublands

Shrublands within the RER are a part of the landscape mosaic and contribute to diversity. However, as with the aspen forest cover, the shrub cover is encroaching on the grasslands. The same general management approach is to be used for shrub land as for forests, as described previously.

- Wetlands

There are several types of wetlands in the RER, which all contribute to biological diversity. They can also be an ephemeral resource, as all of the wetlands have dried up on occasion (eg. as a result of the drought years in the late 1980's). Increased precipitation from time-to-time can restore these water bodies.

- Representative Communities

The management direction will be to maintain approximately the present mosaic, as it is believed to be close to optimal for biodiversity in the parkland ecosystem.

- Special Communities

No special communities have been noted which require special management.

- Representative Species

It is presently not evident that any representative species are absent or in low numbers due to current ecological conditions in the RER. Continuation of present management practices is indicated. Long term monitoring will be conducted to identify trends.

- Special Species

No special species have been noted which require special management.

In the event a rare species is identified in the RER, it will be reported to the Alberta Natural Heritage Information Centre. Advice will also be sought as to appropriate management and a management strategy will be prepared.

Sensitive sites and species will be identified only to qualified scientists engaged in approved research.

Specific Management Activities

- Grazing

It is intended that Usher Ranching Ltd. continue with its current system of management as described in Section 3.7.1. Significant changes to these practices are subject to approval by Public Lands Services. If ecological monitoring indicates a change in grazing practices is required, Public Lands Services will consult with the leaseholder regarding required adjustments.

The grazing lease will be managed to maintain range condition in the good and excellent classes and to maintain the current carrying capacity, all other things being equal (eg. adjustments would be required during drought conditions).

Leaseholder access is to be in accordance with past practices. The leaseholder is encouraged to use existing trails for vehicle access as much as possible. (This would occur in any event due to the rough terrain.) Existing trails may be re-graded as required. Any new trails proposed will need approval by Public Lands Services.

Maintenance of fencing (whether on the edge of the lease area or within it) required for grazing operations will continue to be the responsibility of the leaseholder.

Along fencelines, an open corridor free of tree and shrub growth may be cleared by the leaseholder to facilitate fence maintenance. This also has the benefit of providing fence visibility for cattle and wildlife, thereby reducing the risk of injury from animals colliding with fences.

Creating and maintaining fence corridors will be an acceptable management practice in the RER, subject to the following conditions:

- Maximum clearing width to be 7.0 m on each side of the fence. At this width the approximate total area to be kept clear (based on 1988 aerial photography) is 25 acres (10 ha.).

- The minimum essential clearing is to be done.

- No surface disturbance (no rutting or grading). Work that could result in surface disturbance to occur only during dry or frozen ground conditions.

- Brush removal work involving vehicles, equipment or chemicals not to occur between May 15 and July 15 to avoid the spring bird nesting period.

- new fences to have top wire at maximum 40 inch height and bottom wire at minimum 16 inch height to facilitate wildlife movement.

- Initial brush removal to be by mechanical means only.

- The practice of using herbicides to control poplar suckers along fencelines will be allowed until a satisfactory alternative is found. Practical alternatives will be sought by the Reserve Management Committee and implemented by the leaseholder where feasible. Appendix C provides information about the use of herbicides in ecological reserves.

- The leaseholder will apply to Public Lands Services for approval on the proposed use of herbicides including the type of herbicide to be used and the proposed method and frequency of application. Public Lands Services will

consult with the Reserve Management Committee. Any herbicide shown by research in the RER or elsewhere to have adverse effects on non-target species will not be approved.

- When herbicides are being applied, the location, type of herbicide and precautions that should be taken will be posted on the public notice board (see page 43).

- Herbicide applications will be recorded by the grazing leaseholder and reported for inclusion in the annual report.

- A program to monitor the effects of these herbicide applications on the ecology of the RER will be coordinated by the Natural Resources Service.

- Haying

It is intended that current haying practices (described in section 3.7.1) continue as they contribute to good range management, encourage biological diversity and help to control brush encroachment. If ecological monitoring indicates a change in haying practices is required, Public Land Services will consult with the leaseholder regarding required adjustments.

- Brush Control

If encroachment of aspen poplar groves and shrubs into the grassland continues, and is shown to be altering the representative biodiversity of the parkland mosaic to an unacceptable degree a determination may be made to limit or control it. Factors such as cost, safety, side effects, and ecological benefits will all enter into a consideration of techniques. Brush control will involve cooperation between the leaseholder, Public Lands Services and the Natural Resources Service. Techniques used will be monitored by the Natural Resources Service and Public Lands Services as to their success and effects on the ecology of the RER.

- Weed Control

The best defense against weed problems is a healthy vigorous native plant community. In view of the good condition of the native plant community at the RER weed problems are not expected.

However, as a contingency the following protocol would be followed in the event weed problems occur.

Weed control will be in accordance with the requirements of the Weed Control Act. If required by the Act or local authorities it will be the responsibility of the lessee. Weed control is to be conducted with a method appropriate to the nature of the problem and in such a way that the minimum impact occurs to other vegetation and/or wildlife. Alternative means of weed control include: (1) manual methods, (2) mechanical methods, (3) biological methods or (4) selective chemical application. Methods of weed control are to be approved in advance by the Reserve Management Committee. Discretionary weed control may also be carried out by the government if required for purposes of ecological management. The use of chemicals for weed control will be a last resort. If a herbicide must be used, the Reserve Management Committee must approve in advance the herbicide to be used and the method and frequency of application. Any herbicide shown by the research in the RER or elsewhere to have adverse effects on non-target species will not be approved. Herbicide applications will be recorded by the party doing

the work and reported to Public Lands Services for inclusion in the annual report. The success of applications will be monitored.

For purposes of ecological reserve management the term "weed" is taken to mean any and all non-indigenous species including species that may not be recognized as weeds relative to agriculture. If through ecological monitoring the presence of such species is identified and determined to be ecologically harmful, steps will be investigated for their control or elimination by the Reserve Management Committee.

When the presence of weeds is confirmed in numbers requiring action, management practices will be evaluated to determine if they have a bearing on their presence. If so, practices will be adjusted to attempt to rectify the situation.

The leaseholder will continue to have the normal responsibilities for weed control as they would exist without the designation of the ecological reserve (in accordance with the Weed Control Act and the policies of Public Lands Services), subject to the provisions of this management plan. In the event the leaseholder is faced with an extraordinary cost to carry out weed control as required by this management plan that is above and beyond the costs that would be incurred were the ecological reserve not in place, then the Natural Resources Service will provide compensation to the leaseholder for the difference.

- Insect and Disease Control

Insect and disease control could potentially become an issue in connection with the aspen woodlands. For example, infestations of forest tent caterpillar could be a possibility.

In this category a "let nature take its course" philosophy will be followed as much as possible. Repeated outbreaks of a defoliating insect could have a serious impact on the aspen woodlands. This is a natural process and the most common method of control, chemical spraying, could have unknown effects on the ecology of the RER. However, exceptions will be made in the interest of being a "good neighbour" if an infestation is originating in the RER or if a control program is being carried out in surrounding areas. As much as possible control within the reserve will use methods other than chemical spraying. Selective chemical control may be considered by the Reserve Management Committee.

- "Big Valley natural area" (NW14)

This quarter section will be managed as a benchmark area which is ungrazed and unmowed. It will serve as a research area for purposes of evaluating the effects of grazing, haying and other practices on surrounding land. Ecological monitoring conducted at the RER will incorporate this area in order to evaluate differences in all parameters.

In addition to on-going ecological monitoring, attempts will be made to encourage research and study of this area by other agencies, such as universities.

Canada thistle has been identified in this area. A way of controlling this species by non-chemical means will be investigated.

- Fire Suppression

The standard practice of extinguishing any and all fires using the most effective method available at the time will continue. To prevent excessive or unnecessary physical disturbance, fire suppression methods are to be suited to the severity of the situation.

The standard practices of fire suppression can be placed in one of two categories: direct and indirect attack. Direct attack involves attacking the fire itself, and could entail the use of hand tools such as fire brooms or wet sacks. Water may also be applied using light trucks with slip-on tanks or rural fire trucks. No restrictions on the direct attack methods are proposed beyond a request that the use of vehicles in the RER be kept to the minimum required.

Indirect attack on a fire could involve the construction of fire guards with farm equipment such as plows or discs or road equipment such as a grader. Backfiring can also be done to create a fireguard. Fire guards are created across the head of a fire, along the flanks or as an encircling action in case of wind shifts. Prairie fires generally move so quickly that there is not enough time to construct fire guards, so direct attack methods may be the only practical approach.

The personnel involved in fire suppression could include local residents, workers in the area and fire departments.

Personnel who respond to a fire in the RER will be encouraged to use direct attack methods only, but if a fire guard is necessary, to construct it with the minimum disturbance possible. If sensitive sites are known or marked, these should be avoided. A special bulletin outlining preferred fire suppression methods within the RER will be sent to the fire units in the area. This will include a map, showing routes to and trails inside the RER. This will be updated as required with information about special features that should be avoided. There will be no presumption, however, that ecological resources will override the practical imperative of fire suppression in an emergency situation.

Following fire, no reseeding of burned areas is to be carried out. Natural regeneration will be relied upon, but will be closely monitored. If constructed, fire guards would be returned to original grades and reseeded with native seed. The reseeding will, if feasible, be done by spreading a mulch of native grass cut in the vicinity in similar habitat. This method may not be feasible if seed has already dropped or if the seed set has been poor.

The effect on the flora and fauna of any fire occurring in the RER will be closely monitored and studied to assess its ecological effects.

- Prescribed Fire

Prescribed fire has been used as a management technique in other areas to recreate certain natural conditions. Some rare plants owe their existence to effects created by fire. Prescribed fire may have a role in maintaining the landscape mosaic of the RER. However, at this time, prescribed burning is not planned as a management tool. In the context of a very carefully planned research project, proposals involving prescribed burning will be considered. The preparation of such a proposal would involve close consultation both with the leaseholder in the RER and landholders adjacent to the RER.

6.1.2 Wildlife Values

General Management Direction

- Representative Species

The wide variety of wildlife habitats occurring in close proximity is a key characteristic of the RER. This diversity enables the RER to provide habitat for species representative of the groveland portion of the Central Parkland. It is not evident that any representative species are absent or in low numbers due to the current ecological condition of the RER.

- Special Species

Some species are noted to have an affinity for lightly grazed or ungrazed fescue grasslands. As this habitat is under pressure on the prairies generally, special attention will be paid to these species on the RER. These species include the upland sandpiper and the Baird's sparrow. Their presence, numbers and population trends will be monitored by the Natural Resources Service.

The low shrubbery component is noted (Cottonwood Consultants, 1986) to provide habitat for the rare prairie vole. This habitat will be recognized for its importance to this species.

The rare sharp-tailed sparrow is reported as occurring in seasonally wet meadows.

- Special Habitats

The presence of dense fescue grassland is an important attribute of the RER as this habitat has limited extent in Alberta and it provides habitat for rare species such as the Baird's sparrow. The moraine plateaux in the northern portion of the RER are reported (Cottonwood Consultants, 1986) to provide good examples of this habitat. These areas will be monitored to ensure these conditions persist by Public Lands Services and the Natural Resources Service.

Specific Management Activities

At this time no management activities related to individual species are seen to be required. On-going ecological monitoring will track conditions and if negative trends are observed, measures required to correct the situation will be taken by the Reserve Management Committee.

Steps to control the population of wildlife species will be considered in the following circumstances:

(1) the population level has risen due to non-natural circumstances and is having a demonstrable negative impact on the ecology or species of the RER.

(2) the population level is having a significant impact on the economic viability of the leaseholder's operation.

(3) if the overpopulation problem originates only from the RER, and can be satisfactorily shown to be having a significant negative impact on adjacent lands, whether economically or ecologically.

At the time of preparation of this plan (1998), no wildlife species is known to be at these population levels. All native wildlife species including coyotes, badgers and Richardson's ground squirrels, are natural members of the aspen parkland community and have a role in its ecology. These will not be singled out for control without consideration of the above points.

Fish and game groups have expressed concern over the exclusion of hunting from the RER (and ecological reserves generally). In the case of the RER, opportunities to hunt deer are of particular interest. Under the terms of the WAERNA Act, hunting is excluded unless it serves a specific purpose related to protection of an ecological reserve. The density of white-tailed deer at the RER has been observed to be relatively high, compared with areas of similar habitat outside the reserve (Froggatt, 1996). The mule deer densities were observed to be similar both inside and outside of the RER, in comparable habitat (Froggatt, 1996). The deer population is not known to be having an adverse impact on the RER, so deer hunting for management purposes is not indicated at this time.

The Natural Resources Service will conduct a survey of wild ungulate populations in the area every three years.

The presence of active beaver lodges will also be monitored, in the interest of studying the connection between the presence of beaver and the control of brush.

Through ecological monitoring and wild ungulate population monitoring, a determination will be made by the Reserve Management Committee of maximum deer population levels that are likely to have unacceptable ecological impacts on the RER. If the deer population is at or exceeds a yet-to-be-determined maximum level, a special management hunt may be conducted if the rise in population numbers seems likely to persist. The management of the RER or the deer population will not include an annual or regular deer hunt.

In the event a rare species is identified in the RER, it will be reported to the Alberta Natural Heritage Information Centre. Advice will also be sought as to appropriate management and a management strategy will be prepared.

Sensitive sites and species will be identified only to qualified scientists engaged in approved research.

6.1.3 Aquatic Values

The aquatic values of the RER are broadly grouped into surface water and ground water (although there is in most cases a connection between the two). Surface water at the RER includes many small water bodies and wetlands. The rolling knob and kettle topography creates many depressional areas which have formed a variety of aquatic environments including sloughs, shallow marshes and wet meadows. Most of these occupy small, separate, internal drainage basins. There are literally hundreds of small intermittent sloughs and ponds, depending upon precipitation, especially snowfall. Surrounding the wetlands there is usually a ring of riparian vegetation - mainly willow and aspen poplar. These environments are important parts of the landscape mosaic of the aspen parkland.

Groundwater is of interest at the RER for two reasons. One, groundwater is a key determinant of water levels at the surface and therefore of the status of aquatic habitats. Two, there are three wells in the RER providing water for livestock. The performance of these wells is important relative to range management.

General Management Direction

- Groundwater

The proximity of groundwater to the surface depends on climatic conditions and influences the condition of aquatic habitats. However, deeper groundwater into which stockwatering wells penetrate could be affected by activities outside the RER, such as landfills or gas extraction.

- Representative Features

Cattle will tend to seek water at the numerous sloughs and this can have some impact on aquatic and riparian habitat. However, the very large number of sloughs in the RER results in these impacts being widely dispersed and makes it impractical to prevent (through fencing) cattle from watering at the sloughs. Winter grazing in the RER helps to reduce impacts on aquatic and riparian habitat. No change in current management practices is indicated at present but could be required in some circumstances, such as damage to a threatened species and/or its habitat.

- Special Features

Three aquatic habitats have been identified as significant features:

- moist alkaline meadow (NW 17)
  - lightly grazed
  - uncommon plants - wedge grass
    - mountain willow

- deep slough (NW 28)
  - productive waterfowl breeding area

- extensive moist meadows (S21, N16; SW28)
  - uncommon bird - sharp-tailed sparrow

While available biophysical reports indicate these features are not being impacted by current practices, attention will be paid in ecological monitoring to ensure this continues to be the case.

Specific Management Activities

Other than ecological monitoring as described above, no specific management activities in connection with aquatic values are required at present.

6.1.4 Geologic and Geomorphic Values

General Management Direction

Geologic values (i.e. bedrock) are not of immediate relevance in the RER, as bedrock is buried beneath many metres of glacial till. However, geomorphic values are present in the form of glacial landforms, most notably good examples of knob and kettle topography, moraine plateaux, an esker and a glacial spillway.

The geomorphic values are representative of the landforms commonly associated with the aspen parkland, and particularly the Rumsey block. However, they cannot be described as special or sensitive features requiring management attention.

Specific Management Activities

Possible management activities connected to geomorphic or geologic values would be those related to the access trails, the gas well site and the water wells within the RER..

6.1.5 Atmospheric Values

General Management Direction

Atmospheric values for purposes of ecological reserve management include air quality and noise (i.e. the lack of). Potential impacts in this regard could be from the active gas well in the RER and Secondary Highway 589 along the north boundary of the RER. Oil and gas wells in the general area may also have potential impacts.

Specific Management Activities

No management activities are proposed in connection with noise or air pollution emanating from vehicles using Secondary Highway 589 or on-going operation of the existing gas well. It is assumed that safety regulations will prevent emissions from the gas well that could impact the ecosystem of the RER.

- To aid ecological monitoring, the availability of local weather data will be investigated. Sources could include local weather observers reporting to Environment Canada. Basic annual data, such as precipitation and temperature will be added to the annual report.

6.1.6 Historical Resources Values

General Management Direction

A number of teepee rings and small rock cairns are reported by the leaseholder to be located in the RER. No specific features or sites are on record with the Cultural Facilities and Historical Resources Division of the Dept. of Community Development. As no surface disturbing activities would take place in an ecological reserve, no specific management is indicated for this resource.

Specific Management Activities

- Due to the known presence of stone features, the Historic Sites Service of the Dept. of Community Development will be contacted by the Natural Resources Service to ascertain the need or value of an inventory of historical resources in the RER.

- Due to their sensitivity, the locations of stone features will not be identified in information provided to the public.

6.1.7 Aesthetic Values

General Management Direction

The combination of the aspen tree cover (providing visual screening and enclosure) and the landscape mosaic (the variety of patterns) provides opportunities to effectively conceal physical changes (such as fences) in the landscape, and developments outside the boundaries have little impact on the visual experience within the RER.

No adjacent land-uses have been noted to have a negative visual impact on the RER.

Specific Management Activities

- Boundary marker signs will be installed in a fashion to ensure adequate visibility while avoiding visual intrusion as much as possible.

- Location of any new fencing or other ranch facilities will be selected with visual considerations in mind, although ecological and ranch operation needs will be the primary considerations.

6.1.8 Ecological Monitoring

General Management Direction

Ecological monitoring will be used to establish baseline quantitative data on a number of parameters and to determine trends over time.

If monitoring does result in a change trend being identified in any parameter, management practices will be scrutinized to see if the cause lies within the RER. Similarly, if the effect is believed to result from a cause near the RER, this information will be used to attempt to influence desirable change, if required. If the cause is determined to be natural, no rectifying action will be taken. The possibility will be borne in mind that the cause of any effect may be far from the RER or the influence of managing agencies.

Specific Management Activities

Monitoring programs are to be carried out with emphasis on the following parameters:

- Areal extent of the components of the landscape mosaic. Particular attention to be paid to encroachment on the grasslands by aspen poplar and shrubs.

- Numbers and impacts of wild ungulate populations on the RER to determine a population level above which management hunts are indicated.

- Presence and numbers of active beaver lodges, to monitor effects on brush control.

- Effects of any major disturbance (such as a fire) and the rate of recovery by vegetation and wildlife.

- Population and trends of indicator species of climax fescue grasslands, such as Baird's sparrow and upland sandpiper.

- Populations and trends of species associated with wet meadows such as sharp-tailed sparrow.

- Presence of non-indigenous species, particularly in areas recovering from disturbance.

- Monitoring of public use will also be carried out. This will have four purposes:

    1. To ensure public use and research is not having unacceptable impacts on the leaseholder Usher Ranching Ltd. will monitor the amount of time its employees have to devote to management of public use and researchers.

    2. To learn from visitors of their observations and experiences at the RER.

    3. To ensure compliance with the WAERNA Act.

4. To ensure public use is not having unacceptable impacts on the RER.

Monitoring may be conducted by either the leaseholder and/or managing agencies in partnership or independently. Monitoring responsibilities are described in Appendix B.

6.2 USES OF NATURAL VALUES

6.2.1 Scientific Research and Collection

- Research activities will be administered in accordance with the existing policy for research and collection activities in ecological reserves.

- Research proposals (including research done by, or on behalf of, the government) will be reviewed by the Reserve Management Committee. The committee will provide its recommendations to the Head, Public Lands Services, Central Region.

- Research into topics of practical interest for management of the RER will be encouraged. The topics include:

  - determination of the rate of encroachment of aspen poplar and shrubs on the fescue grasslands and identification and testing of ways to control it.

  - determination of grazing patterns to best promote and sustain biodiversity.

- In consideration of its earlier involvement in the "Big Valley natural area", Olds College will be contacted by Public Lands Services to review its research and study interests there.

6.2.2 Heritage Appreciation

The topic of heritage appreciation is managed by means of four approaches: environmental education, interpretation, information and orientation. The subject of public access to the RER is also important in this connection.

Environmental Education

Environmental education is an important role for ecological reserves. For purposes of this plan, the term refers to the use of an ecological reserve as an outdoor classroom.

- Use of the RER for environmental education will be permitted to a limited extent. Programs for this purpose will be low key and small-scale.

- Visits to the site for field trips by schools at all levels will be accommodated provided the RER or the operations of Usher Ranching Ltd. are minimally impacted. This use will be closely monitored by Usher Ranching Ltd. and the managing agencies.

- Travel in the RER by all members of the public will be on foot only.

- A small package of learning resource materials for the RER will be prepared by the Natural Resources Service. This will be provided to schools in the general region (e.g. Big Valley, Stettler, Drumheller) for the purpose of educating students about this special environment in their area. Government staff will generally not be available to assist in educational activities on the site. The Natural Resources Service will explore the possibility of knowledgeable volunteers providing such services. Such services would have to be pre-arranged with considerable lead time.

Interpretation

The term interpretation refers to communications designed to help the public gain a deeper understanding of a subject through first-hand involvement. It is aimed more at the general public, as opposed to organized school groups. Interpretation can be delivered by "personal" means (e.g. a staff member delivering a program) or by "non-personal" means (e.g. signs or brochures).

- A modest level of on-site non-personal interpretation will be provided at the RER. This will be limited to a single sign at a parking/staging area located outside the RER.

- Government staff will generally not be available to provide interpretation on-site. A possible role for volunteer interpreters will be considered.

- The interpretive themes will include: the species and habitats of the aspen parkland, the importance of this remnant of the aspen parkland ecosystem and the role of cattle grazing.

Information and Orientation

The subject of information and orientation concerns the provision to the public of basic, practical information regarding the RER (e.g. where it is, how to get there, what the rules are). Adequate information will be available to enable people to visit the RER, while not actively promoting visits. To this end, information and orientation will be communicated by three means: signs, a pamphlet and personal contacts.

Signs - Boundary signs have been installed at some locations. Additional boundary signs will be added, as required, to be in accordance with the signs policy for ecological reserves. These signs will be maintained by the Natural Resources Service.

- An information, orientation and registration sign will be installed at a staging area (see Map 7). This sign will be designed, fabricated, installed and maintained by the Natural Resources Service. This sign will address the following topics:

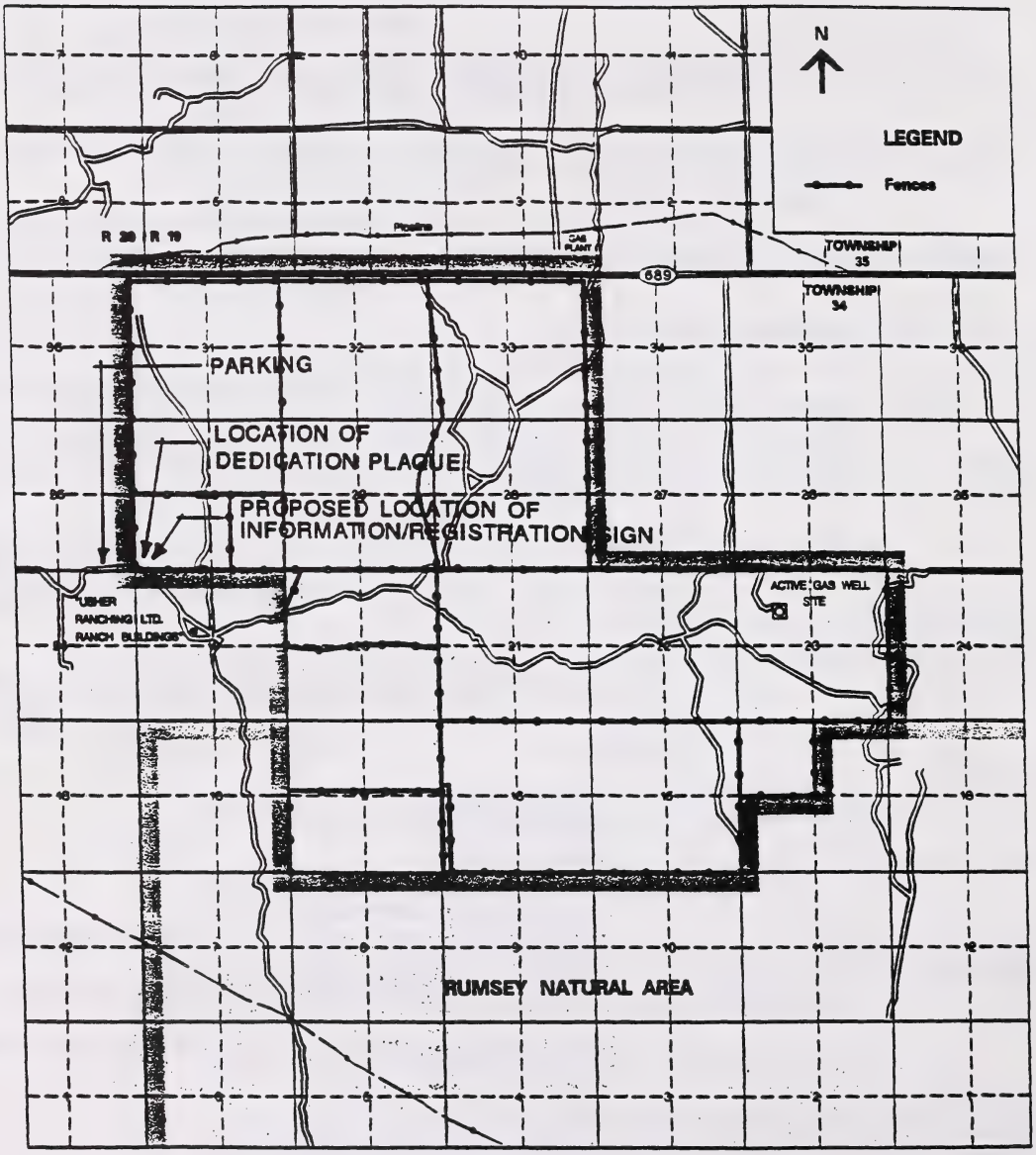
  - Purpose of the RER
  - Rules and regulations
  - Role of grazing
  - Public safety message about cattle at large
  - Strong warning about the risk of fire
  - Requirement for visitors to register and a registration arrangement
  - Requirement to park on roadside at this location
  - Warning that at times access may be restricted due to high fire hazard or in certain areas for safety (e.g. bull pasture).
  - Notices regarding pesticide applications (date, times, type, precautions that should be taken)
  - Information contact numbers
  - map
  - interpretive information

- Similar, but smaller, signs will be placed at secondary access points.

Pamphlet- A brief pamphlet will be prepared by the Natural Resources Service to provide general information and interpretation.

RUMSEY ECOLOGICAL RESERVE

AREA 8,480.00 ACRES (3,431.86 HECTARES)



Map 7. Location of Parking and Information/Registration Sign

- This pamphlet would be provided on request to interested members of the public, but would not be put in general circulation (e.g. it would not be provided to tourism offices for use in a promotional fashion). The content of the pamphlet would be similar to that of the above mentioned sign. It would not have a promotional tone.

Public Contact

- The primary contact office will be the closest Natural Resources Service office open year-round.
- The public can also contact the Public Lands Services office in Red Deer (telephone: 403-340-5451).
- Larger groups will be requested to contact both the Natural Resources Service contact office and Usher Ranching Ltd. to advise of planned visits.

Access

Public Access

(Note: The provisions for public access described in this plan may be superseded by legislation or regulations resulting from the report of the Agriculture Lease Review Committee.)

- Public access within the RER will be on foot only.
- At the location of the dedication plaque (see Map 7) a sign will be installed for the purpose of visitor check-in and also to provide general and regulatory information. Included on the sign will be an area where the grazing leaseholder and the government agencies can post notices concerning possible hazards (e.g. bulls) and access restrictions to all or part of the RER (e.g. due to high fire hazard, ranch operations such as round-ups).

  The visitor check-in will be a register to be used for monitoring public use, comments and observations. It will not be checked daily or on a regular basis and will not serve as a sign-in/sign-out service for public safety. (This will be noted on the sign.)

  Smaller signs advising visitors to check-in at the above location and obtain information about possible hazards will be placed at secondary access points, along with boundary signs, such as along the north boundary adjacent to Secondary Highway 589.

  The signs and public registration system will be designed, installed and maintained by the Natural Resources Service.
- The Natural Resources Service will arrange for the creation of regulations to prohibit certain activities at the RER: recreational equestrian use, overnight camping, bicycling, smoking, all fires (including campstoves) and dogs and other pets.
- Public access to the RER will be noted in information material as being two miles south of Secondary Highway 589 on Highway 56, then east to the ecological reserve.

Grazing Leaseholder Access

- The leaseholder may operate vehicles and other equipment as required for the ranching operation. Existing trails should be used as much as possible.

- The existing trails are presently sufficient for ranch operations. Any new trails proposed will need the approval of Public Lands Services.

- The leaseholder has traditionally used horses for some aspects of ranch work and this practice will continue.

- If any existing trails are not required by the leaseholder, consideration will be given to their reclamation by the RER management committee. Such reclamation will be done with native species in a manner compatible with ecological conditions and will be the financial responsibility of the government.

Vehicle Use by Government Staff and Researchers

- The use of vehicles by researchers in the reserve will be restricted to work on specific projects. Use of vehicles by government staff will be in response to specific issues, emergency situations and occasional inspections. In wet conditions vehicles should be used only in an emergency. Vehicle traffic will be confined to well-established trails, unless it is essential to use a vehicle to support an approved project or respond to an emergency.

6.2.3 Outdoor Recreation

Outdoor recreation activities to be permitted in the RER are only those that are low-intensity and non-consumptive, such as wildlife viewing and photography. It is intended that some recreational activities will specifically not be permitted at the RER, and these are listed below (as previously identified in the public access section). Some are already specifically prohibited by the Wilderness Areas, Ecological Reserves and Natural Areas Act:

Not Permitted:

- recreational equestrian use (including horse-drawn vehicles)
- overnight camping
- smoking
- all fires, including campstoves
- bicycling
- mechanized recreation of any type (including all-terrain vehicles and snowmobiles)
- trapping
- dogs (including on–leash)

As currently proposed the Natural Heritage Act will provide the authority to enforce prohibitions such as the above. Prohibitions will be enforced consistent with the Act and the Management Plan. Appendix A should be consulted regarding activities that are not permitted in ecological reserves generally.

No facilities for recreational use will be developed in the RER. At present recreation use is minimal.

6.2.4 Non-conforming Uses

Natural Gas Extraction

The existing gas well will continue to operate until the resource is depleted. The current access practices will be continued as long as the well is in operation. All facilities will be removed and the disturbed surface area reclaimed upon the depletion of the resource. The standard reclamation practices utilizing native grass seed required by Public Lands Services will apply.

There will be no future or additional surface access in the RER for purposes of exploration or extraction of minerals. These resources may be extracted only if accessed from locations outside the RER in a manner that will not affect the natural values of the RER e.g. groundwater quality and supply. If natural values are affected, the appropriate authorities will be notified.

Ducks Unlimited Easements

Ducks Unlimited Canada will be contacted by Public Lands Services with a view to the cancellation of these easements.

7.0 SURROUNDING LANDS

The RER is dependent to some degree on the uses of the surrounding land to maintain its ecological integrity and its value as a representative sample of the Central Parkland.

This section examines the use of the land surrounding the RER from the standpoint of identifying potential impacts on the RER. The uses and ownership of the surrounding land are shown on Map 4.

Land along the southern boundary of the RER is provincial land in the Rumsey Natural Area. This land is part of the Rumsey South Environmentally Significant Area, rated as being of national and international significance (Cottonwood Consultants, 1991). The use of land in the Rumsey Natural Area is governed by a policy document referred to as the Rumsey Parkland South Regionally Integrated Decision (RID). The management goal stated in the RID is:

> ***"To preserve and protect the Rumsey Aspen Parkland ecosystem while allowing for responsible use of its resources."***

This goal is generally congruent with those for the RER, and should help avoid incompatible land-uses.

The activities permitted in the RER are highly constrained by the WAERNA Act, and further refined by this management plan. The activities permitted in the Rumsey Natural Area are defined by the policies prescribed in the RID, and are substantially the same as on public land generally. A key difference, however, is more stringent guidelines are in place in the RID for surface access for oil and gas activities, particularly for mineral rights sold after January 1, 1991. Mineral rights sold after that date can be developed only by using existing roads and trails. New roads, trails and well sites may only be developed for mineral rights sold before January 1, 1991 and for freehold mineral rights. In either case, guidelines are prescribed in the RID to minimize the environmental impacts of any oil and gas activities.

The following table highlights some of the key differences between the management of activities in the RER and the Rumsey Natural Area:

ACTIVITY	RUMSEY ECOLOGICAL RESERVE	RUMSEY NATURAL AREA
Agriculture	- livestock grazing (and some haying) - no cultivation	- livestock grazing and haying - one cultivated parcel
Oil and Gas	- one existing gas well may produce to depletion - no future surface rights or other industrial surface dispositions to be granted - no future seismic work	- numerous existing oil and gas wells, pipelines and access roads - new access roads can be developed (subject to conditions) for mineral rights sold before Jan. 1, 1991 or freehold mineral rights. - mineral rights sold after Jan. 1, 1991 can be developed only by use of existing access roads and trails - seismic work must be conducted on existing roads and trails with conventional vehicles. - off-trail seismic work must be conducted with low ground pressure vehicles.
Hunting	- no hunting, unless required for ecological management purposes	- hunting as per WMU 166.
Access	- Public - foot access only (after registration at check-in sign) - Grazing leaseholder - horses and vehicles as required for ranch management - vehicles to stay on trails as much as possible	- Public (all access requires permission from grazing lease-holder) - foot access permitted - conventional vehicles permitted on existing upgraded roads and trails - off-highway vehicles (including snowmobiles) permitted - Grazing leaseholder - minimum access allowed for operational purposes

The main activity in the Rumsey Natural Area with implications for the RER is oil and gas development. Most of the land along the south boundary of the RER is underlain by freehold mineral rights (one section) or rights issued before Jan. 1, 1991. Consequently, there may be demand from the industry to develop roads, trails and well sites in close proximity to the RER. Public Lands Services will endeavor to maintain as much spacing as possible between these activities and the RER, to protect the visual and environmental integrity of the RER. Possible impacts on groundwater quality, with potential impacts on wetlands and stock watering wells, will also be considered.

Most of the private land on the west, north and east sides of the RER is very similar in character to the ecological reserve. (See Map 4 for adjacent land ownership and uses.) The land north of the RER is part of the Rumsey North environmentally significant area, rated as having provincial significance (Sweetgrass Consultants, 1988). This land use situation is also complementary to that of the RER. In view of the surrounding land situation, the designation of a buffer zone is not considered necessary, nor are boundary adjustments, unless a change in the surrounding land use is proposed.

In the case of private land adjacent to the RER, steps will be taken to attempt to minimize impacts on the RER of well sites and related facilities. This will be done by requesting the Alberta Energy and Utilities Board to advise Public Lands Services of any proposed wells on private land within 0.5 km of the RER, and provide the opportunity to comment with respect to possible effects on the RER.

About four kilometers (2.5 miles) of the private land along the west and east boundaries of the RER is cultivated. The most likely impact this land use could have on the RER is weed encroachment, although fertilizer or pesticide applications could also have an effect. To prevent problems from developing, the adjacent RER land will be periodically inspected for weeds or other impacts.

If facilities for industry or intensive agriculture are proposed on private land in the vicinity of the RER, their potential impacts on the RER will be considered by the Reserve Management Committee. If activities or developments are expected to compromise the integrity of the RER, the responsible agency will be requested by the Natural Resources Service and Public Lands Services to not approve the activities or developments, or to require conditions to minimize effects on the RER. The goal will be to ensure the visual and environmental integrity of the RER is not affected by activities on adjacent land. If land use conflicts arise that cannot be resolved by other means, consideration will be given to the use of a conservation easement (negotiated voluntarily with the land owners) to maintain land uses that are compatible with the RER.

8.0 BASELINE STUDIES AND INFORMATION NEEDS

8.1 Baseline Studies

Two biophysical studies of the RER have been prepared (Fehr, 1982; Cottonwood Consultants, 1986).

A range inventory (Eastern Rangeland Seeds Ltd., 1994) and geomorphic system classification (Karpuk, 1995) were prepared for the Rumsey block as a whole, including the RER.

8.2 Summary of Information Needs

In connection with the designation of the RER and implementation of this plan, a number of information needs exist:

a) As a condition of designation of the RER the deer population is to be monitored. This is for the particular purpose of ascertaining the population level at which unacceptable impacts on the RER occur, requiring action to reduce the population. This monitoring will be carried out as follows by Natural Resources Service staff:

- conduct aerial surveys every three years to determine the population trends of wild ungulates inside versus outside the RER.
- record complaints received from neighbours
- obtain observations from grazing leaseholder
- record road kills and current crop use on neighboring land
- monitor browse utilization

This population monitoring will be related to other ecological conditions on the RER in order to determine if there is a deer population level at which unacceptable impacts occur on other natural values of the reserve.

b) Breeding bird population trends. Surveys have been initiated by Natural Resources Service staff.

c) The rate of encroachment of trees and shrubs on the grasslands is important as it may have the effect of altering biodiversity and the ability of the RER to represent effectively the Central Parkland. The trend of encroachment over time will be precisely determined and monitored by Public Lands Services.

d) Techniques that could effectively and economically be used to control aspen and shrub encroachment and maintain the biodiversity currently present in the Parkland mosaic will be investigated by Public Lands Services. Should any technique be employed, its success and ecological effects will be monitored by Public Lands Services and the Natural Resources Service.

e) Permanent transects will be established in the RER by Public Lands Services to monitor changes in vegetation composition and diversity.

f) A monitoring program will be coordinated by the Natural Resources Service to study the ecological effects of herbicide use on fenceline corridors.

g) Public use of the RER in terms of numbers, interest and types of groups will be monitored by the leaseholder and the Natural Resources Service.

h) Sources of local weather data will be identified (e.g. local weather observers for Environment Canada) by the Natural Resources Service.

9.0 PROGRAM SUPPORT

9.1 Regulations and Enforcement

As described in Section 6.2.3, regulations will be prepared and proposed for approval to prohibit certain activities. The regulations will be prepared, along with other required arrangements, by the Natural Resources Service.

Enforcement will be provided by park rangers and fish and wildlife officers of the Natural Resources Service.

9.2 Volunteers

With a long-term grazing leaseholder providing stewardship, volunteers could have more specific roles. Particular areas where volunteers would be helpful are environmental education, interpretation and environmental monitoring.

It would be desirable if interested and capable people could be found in the local area or region for these roles. Such people might be able to respond on relatively short notice to assist with interpretation or other activities, and might have good first-hand knowledge of the area.

All volunteers and their roles will be reviewed and approved by the RER Management Committee.

10.0 IMPLEMENTATION

Following approval of this plan, the provincial government agencies will proceed with its implementation. The provincial agencies involved in management of the RER will continue with their standard responsibilities to enforce the provisions of their respective acts (e.g. Public Lands Act, Wildlife Act, etc.). All agencies involved will also assume a shared responsibility to enforce the Wilderness Areas, Ecological Reserves and Natural Areas Act, although Public Lands Services will continue in its principal role as the land managing agency with the responsibility to manage the RER in accordance with this plan. The Natural Resources Service will continue to meet its responsibilities for wildlife management and program support. It will also play a role in the management of public use of the RER.

Reserve Management Committee

To assist in the coordination required to implement this plan, a reserve management committee will be formed. The membership of the committee is listed below, along with the principal responsibilities for each participant. More details as to specific tasks to be performed are presented in Appendix B - Detailed Implementation Work Plan.

Participant	Responsibilities
Land Resource Agrologist Public Lands Services Dept. of Agriculture, Food and Rural Development	- general land management - dispositions - research and collection permits - preparation of annual report - vegetation monitoring - studies required for management purposes

Wildlife Biologist Natural Resources Service Dept. of Environmental Protection	-	wildlife monitoring and management
	-	field enforcement by Fish and Wildlife officers (response to complaints only)
Park Ranger Natural Resources Service Dept. of Environmental Protection	-	installation and maintenance of signs
	-	preparation of information pamphlet and learning resource manual
	-	monitoring and management of public use
	-	field enforcement (response to complaints only).
	-	public information primary contact
Usher Ranching Ltd.	-	ranch operations
	-	general observations of public use, vegetation and wildlife conditions
	-	public information (at ranch site)
	-	annual report on ranch operation (eg. livestock grazing use and patterns, haying areas)
	-	monitor time required by Usher Ranching Ltd. employees to manage public use and other activities related to management of the RER.
Environmental Group Representative	-	communication regarding reserve management with interested groups and individuals in the environmental community
	-	assist other committee members if needed (eg. in preparation of information material)
	-	contribute to annual report, particularly section pertaining to public use

The committee will meet from time-to-time as required, typically once per year. The meeting would usually be held in late spring/early summer to combine a business meeting with a site inspection. Most other business can be carried out by telephone. The committee will be chaired by the Public Lands Services representative.

11.0 PLAN REVIEW AND AMENDMENT

To enable the plan to be improved and responsive (e.g. as new information becomes available) it will be reviewed annually by the Reserve Management Committee and updated, if required. Minor housekeeping updates will be carried out as a matter of course, but, if events dictate, a major review could be required, including pubic consultation.

12.0 ANNUAL REPORT

At the conclusion of each calendar year Public Lands Services will prepare an annual report concerning the "State-of-the-Reserve". This report will help to create a long-term knowledge base for the RER that researchers and other observers can use to monitor the condition and trends of the RER.

Each member of the Reserve Management Committee will have the task of preparing the part of the report relevant to his or her responsibilities. The report will describe research activities, monitoring, resource use (i.e. grazing and haying utilization), other aspects of ranch operations, status of the gas well site, public use, a description of resource conditions and trends and weather data.

The annual report will be provided to the Parkland Corporate Region Environmental Resource Committee. The report will be made available to any individual or organization that requests it.

13.0 FOR FURTHER INFORMATION

If you would like further information on the RER, or if you wish to comment on this plan, please contact:

Public Land Services
Dept. of Agriculture, Food and Rural Development
First Red Deer Place, Suite 504
4911 - 51 Street
Red Deer, Alberta
T4N 6V4

403-340-5451

Red Deer River Area
Parkland Region
Natural Resources Service
Dept. of Environmental Protection
Box 269
Bentley, Alberta
T0C 0J0

403-748-3939

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APPENDICES

APPENDIX 'A'

Dispositions and other Land-use
Activities in Ecological Reserves
as Governed by the Wilderness Areas,
Ecological Reserves and Natural Areas Act

The following summary outlines details relating to dispositions and other land use activities as governed by the Wilderness Areas, Ecological Reserves and Natural Areas Act. This summary intends only to provide general direction; it is not a legal interpretation. "Minister" refers to the Minister of Alberta Recreation and Parks unless otherwise stated.

Under Section 5 of the Act, the Minister of Recreation and Parks may approve programs to be carried out for:

(a) the management and preservation of the animals, plants or environment,
(b) environmental research that does not involve physical disturbance,
(c) public education and interpretation,
(d) preservation and protection of the Reserve.

All of the activities listed under the section entitled "Other land Use Activities" (page 4 below) are generally not permitted [section 8(1)] unless required to carry out the above programs [section 9(a)] or unless required to extinguish forest fires, prevent damage to natural resources or property or in emergencies involving health and safety of people [section 9(b)].

When the term "existing" is used in the following discussion, it refers to dispositions and/or activities that were in existence **prior to** the ecological reserve being established.

Dispositions

1.	Petroleum and Natural Gas (PNG) Dispositions **NOTE**: This refers only to subsurface leases.	- new dispositions may be issued [section 7(b)]. - Existing dispositions may continue to expiry [section 6(2)].
2.	Dispositions under the **Public Lands Act** or **Special Areas Act** in connection with a PNG disposition made under the Mines and Minerals Act.	- existing dispositions (e.g., wellsites, access roads, pipelines may continue to expiry and be renewed with the Minister's consent [section 6(3)(a)]. - No new dispositions may be granted [section 7(1)(b)]
3.	Dispositions under the **Public Lands Act** other than in connection with a PNG disposition made under the Mines and Minerals Act (e.g., grazing leases, recreation leases etc.)	- Existing dispositions may either be terminated [section 6(1)(a)] or allowed to continue to expiry and renewed only with the written consent of the Minister [section 6(3)(b)]. - No new dispositions may be granted [section 7(1)(b)]
4.	Dispositions under the **Special Areas Act** (e.g., leases, permits, easements, etc.) other than in connection with PNG agreements.	- Existing dispositions may either be terminated [section 6(1)(b)] or allowed to continue to expiry and renewed only with the written consent of the Minister [section 6(3)(c)].

		- No new dispositions may be granted [section 7(1)(b)].
5.	Dispositions under the **Mines and Minerals Act** other than PNG dispositions (e.g., coal leases, quarriable mineral leases, etc.	- Dispositions must be terminated as soon as possible [section 6(1)(e)].
6.	Timber licences and timber permits under the **Forest Act**.	- Existing dispositions may either be terminated [section 6(11)(c)] or allowed to continue to expiry and renewed only with the written consent of the Minister [section 6(3)(d)].
7.	Livestock grazing permits under the **Forest Reserves Act**.	- Existing dispositions may be allowed to continue to expiry and renewed only with the written consent of the Minister [section 6(3)(e)]. - No new dispositions may be granted [section 7(1)(b)].
8.	Other dispositions or land interest under other legislation.	- No dispositions can be granted by any Minister of government agency [section 7(2)].

OTHER LAND USE ACTIVITIES

1.	Petroleum & Natural Gas Activities	- Existing activities (e.g., operation of wellsites, utilization of roads and pipelines) may be allowed to continue subject to the Minister's consent [section 6(3)(a)]. - New activities (e.g., geophysical operations, drilling of wells, etc.) are not permitted [section 7(1)(b)].
2.	Constructing, maintaining, repairing or operating of public works, roads, railways, aircraft landing strips, helicopter bases, and other structures or installations.	- These activities are not permitted [section 7(3)(a) and section 7(3)(b)] excepting certain situations as described in the Introduction above.
3.	Hunting and Trapping	- These activities are not permitted [section 8(1)(b)] excepting certain situations as described in the Introduction above.
4.	Fishing	- This activity is not permitted [section 8(1)(c)] excepting certain situations as described in the Introduction above.

5.	Landing an aircraft	- This activity is not permitted [section 8(1)(d)] excepting certain situations as described in the Introduction above.
6.	Littering	- This activity is not permitted [section 8(1)(e)] excepting certain situations as described in the Introduction above.
7.	Collecting, destroying or removing any plant, animal, fossil or object of cultural or scientific interest.	- These activities are not permitted [section 8(1)(f)] excepting certain situations as described in the Introduction above.
8.	Introducing substances or materials harmful to plants or animals.	- This activity is not permitted [section 8(1)(h)] excepting certain situations as described in the Introduction above.
9.	Operating motorized vehicles	- This activity is not permitted [section 8(1)(i)] excepting certain situations as described in the Introduction above.
10.	Lighting Fires	- These activity is not permitted [section 8(1)(j)] excepting certain situations as described in the Introduction above.
11.	Constructing, repairing or adding to existing improvements.	- These activities are not permitted [section 8(l)(k)(i)] excepting certain situations as described in the Introduction above.
12.	Disturbing the surface of the land	- These activities are not permitted [section 8(l)(k)(ii)] excepting certain situations as described in the Introduction above.

APPENDIX B

Detailed Implementation Work Plan

Listed below are specific tasks that are to be carried out as part of the implementation of the management plan for the Rumsey Ecological Reserve.

The tasks are grouped according to the agency which has the responsibility to accomplish them. A time frame within which results are to be achieved is noted. If a task will require support from, or collaboration with, other staff, this is also identified.

The tasks listed below are only those which can be carried out independently of any other event; that is, well-defined and monitorable activities. The numbers by which the tasks are listed do not indicate priority.

Three other types of management activities involved in implementation are not listed. The main body of the plan must be consulted for this information. These activities can be described as:

(1)	Conditional tasks	-	activities that would be carried out in response to another event. For example, the task of extinguishing a wildfire, if one occurred.
(2)	Passive management	-	in some cases actions or events are identified that would not be done or allowed to occur.
(3)	Guidelines	-	these are often the instructions as to how or when a task is to be carried out and are not repeated below. A page number is given in the main body of the plan where more detailed information can be found.

Tasks that are the Responsibility of Public Lands Services

1. Monitor trends in the cover of aspen poplar groves and shrubbery, using a quantitative, replicable methodology. (p. 31, 41, 50)

   Time frame: on-going

2. Monitor condition and trends of grassland. (p. 33)

   Time frame: on-going

3. Recommend non-chemical means of brush control for use along fencelines and possibly at some time in the future to control brush encroachment generally. (p. 33, 34, 50)

   Time frame: 2 years

4. Monitor for presence of non-indigenous species. (p. 34, 35, 50)

   Time frame: on-going
   Support:
   - Usher Ranching Ltd.
   - Natural Resources Service

5. Investigate means of control of Canada thistle in the "Big Valley natural area" (p. 35)

   Time frame: 2 years

6. Provide bulletin (including a map) regarding fire suppression in the RER to local fire units. (p. 36)

   Time frame: 1 year

7. Monitor impacts of cattle grazing on water bodies, particularly: (p. 39)

   a) moist alkaline meadow (NW17)
   b) deep slough (NW28)
   c) moist meadows (S21, N16, SW28)

   Time frame: on-going

8. Request Alberta Energy and Utilities Board well licensing section advise of any proposed well sites or related facilities within 0.5 km of the RER. (p. 49)

   Time frame: 1 year

9. Contact Ducks Unlimited regarding easements. (p. 21, 47)

   Time frame: 1 year

10. Prepare annual report (p. 53)

    Time frame: annually
    Support: - all members of the Reserve Management Committee

Tasks that are the Responsibility of the Natural Resources Service (Fish and Wildlife Program), Red Deer River Area.

1. Monitor presence, numbers and population trends of: breeding birds (including sharp-tailed sparrow, upland sandpiper, Baird's sparrow) and wild ungulates. Also monitor presence of active beaver lodges. (p. 37, 38, 41)

   Time frame: on-going

2. Monitor quality of dense fescue grassland on the moraine plateaux in terms of habitat for Baird's sparrow. (p. 37)

   Time frame: on-going

3. Monitor impacts of wild ungulates on vegetation. (p. 38)

   Time frame: on-going

4. Determine deer population level that has an unacceptable impact on the ecology or landscape of the RER. (p. 38, 50)

   Time frame: 5 years
   Support: - Usher Ranching Ltd.

5. Prepare section of annual report (p. 53)

   Time frame: annually

6. Coordinate program to monitor effects of herbicides to fencelines. (p. 34, 50)

Time frame: on-going, until alternative adopted
Support: Public Lands Services

Tasks that are the Responsibility of the Natural Resources Service (Recreation and Protected Areas Program), Red Deer River Area

1 Monitor public use: (p. 41, 42, 50)

Time frame: on-going
Support:
- Usher Ranching Ltd.
- Public Land Services

2. Prepare information pamphlet (p. 43)

Time frame: 2 years

3. Contact Olds College regarding research/education interests at the RER. (p. 23, 42)

Time frame: 1 year

4. Prepare small package of learning resource materials and provide to schools in the region. (p. 42)

Time frame: 2 years

5. Investigate possibility of a volunteer program to guide groups on a pre-arranged basis. (p. 42, 43)

Time frame: 2 years

6. Prepare and install information/notice board/check-in/interpretation sign. (p. 43)

Time frame: 1 year

7. Install boundary signs and smaller secondary information signs. (p. 41, 43)

Time frame: 1 year

8. Prepare section of annual report (p. 53)

Time frame: annually

9. Investigate sources of local weather data. Obtain and provide data for annual report. (p. 40, 51)

Time frame: 1 year/annually

10. Contact Historic Sites Service regarding historical resources inventory. (p. 40)

Time frame: 1 year

11. Prepare required regulations and follow through to approval. (p. 45, 46, 51)

Time frame: 1 year

Tasks that are the Responsibility of the Leaseholder.

1. Submit general information for annual report: ranch operations including grazing and haying practices, observations of visitors, other observations, incidents. (p. 53)

   Time frame: annually

2. Monitor time required of ranch employees to manage public use and other activities related to management of the RER. (p. 41, 42, 50)

   Time frame: on-going

Tasks that are the Responsibility of the Environmental Group Representative

1. Provide on-going liaison with interested groups and individuals in the environmental community regarding reserve management. (p. 52)

   Time frame: on-going

2. Contribute to annual report, particularly on topic of public use. (p. 53)

   Time frame: annually

Alberta

MEMORANDUM

JUSTICE
Civil Law Branch
Environmental Law Section

7th Floor, Oxbridge Place
9820 - 106 Street
Edmonton, Alberta T5K 2J6

FAX: (403) 427-4343
Internet Address:
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VIA REGULAR MAIL

FROM: **Maureen Harquail**
Barrister and Solicitor
Environmental Law Section

OUR FILE REFERENCE: 0640

YOUR FILE REFERENCE:

TO: **Dan Chambers**
Manager
Natural Heritage Planning and Evaluation Branch

DATE: August 14, 1998

TELEPHONE: 427-3496

SUBJECT: **Use of Herbicides in Ecological Reserves**

Issue:

Whether the use of herbicides in ecological reserves for any of the following purposes would contravene the *Wilderness Areas, Ecological Reserves and Natural Areas Act* ("Act"):

a) to help maintain fencing to manage cattle grazing which contributes to biodiversity; or
b) general brush control which may be required to maintain the landscape mosaic; or
c) for weed control under the *Weed Control Act*.

Discussion (A & B):

With respect to the use of herbicides for the first two purposes, we believe that authority for this action can be found as follows:

Section 5 The Minister may carry out or cause to be carried out measures or programs in a ...ecological reserve, or approve the carrying out by other persons of measures or programs in a ...ecological reserve,

a) for the management and preservation of the animal and plant life and the environment of the ...ecological reserve,
b) generally, for the preservation and protection of the ...ecological reserve.

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An exception can be found at section 9(a) which states:

Section ...8 do[es] not apply to any of the following action ...authorized by the Minister:

a) the carrying out of measures or programs referred in section 5.

Once section 9 is applied, the prohibitions which are found in section 8 do not apply.

It is also worth noting that the Act does not specifically state that the Crown is bound and that the Interpretation Act (section 14) states:

> No enactment is binding on Her Majesty or affects Her Majesty or Her Majesty's rights or prerogatives in any manner, unless the enactment expressly states that it binds Her Majesty.

Discussion (C):

With respect to the use of herbicides as required under the *Weed Control Act*, we believe that authority and indeed a requirement exists for action to be taken by the Crown.

The *Weed Control Act,* at s.41, provides that the Crown is bound by the Act. In addition, section 31 states:

> An occupant of land, or if the land is unoccupied, the owner of the land, shall as often as is necessary
>
> a) destroy all restricted weeds located on the land to prevent the spread, growth, ripening or scattering of the restricted weeds,
> b) control in accordance with this Act and the regulations all noxious weeds located on the land to prevent the spread, growth, ripening or scattering of the noxious weeds, and
> c) prevent the spread or scattering of nuisance weeds.

No exemption was found which would exempt ecological reserves from the requirements of the *Weed Control Act*.

Environmental Protection and Enhancement Act ("EPEA")

EPEA specifically states that the Crown is bound. Prior to applying pesticides, it **may** be necessary to obtain a Special Use Approval if the conditions warrant such an approval. Section 11 of the Pesticide (Ministerial) Regulation sets out when a special use approval is required:

Unless he holds a special use approval issued by the Director, no person shall

(1) a) use or apply a pesticide in or on an open body of water,

b) use or apply a pesticide by means of ground application equipment on cultivated land within a horizontal distance of 10 metres from an open body of water,

c) use or apply a pesticide

i) on land that is not cultivated land, or

ii) by air on any land within a horizontal distance of 30 metres from an open body of water, or

d) store a pesticide within a horizontal distance of 30 metres from an open body of water.

(2) Subsection (1) does not apply to

a) a person who holds a service approval under which such a use or application is authorized, or

b) a wildlife official using or applying a vertebrate toxicant in accordance with the latest edition of *Procedures for Using Vertebrate Toxicants in Alberta* published by the Department.

Conclusion:

The use of herbicides in ecological reserves is acceptable so long as it is part of a plan to manage and protect the reserve. If herbicides are to be used, review requirements under the EPEA for Special Use Approvals.

Maureen Harquail

MAH/sd

actsheet

Pesticide Management Branch

Alberta ENVIRONMENTAL PROTECTION

SPECIAL USE APPROVAL

January, 1997

What is a Special Use Approval?

A Special Use Approval is an approval from Alberta Environmental Protection to **apply** or **store** pesticides, or **wash equipment** used to apply pesticides (herbicides, insecticides, fungicides, rodenticides) in, on or within 30 horizontal metres of an open body of water. An open body of water includes lakes, streams, rivers, irrigation canals and other natural water bodies. An open body of water does not include ponds or dugouts that have no outlet, are completely surrounded by private land, and are less than 4 hectares (10 acres) in area. Roadside ditches and small (less than 0.5 metres wide), dry intermittent streams are also not considered open bodies of water.

What is the Purpose of Issuing Special Use Approvals?

A Special Use Approval protects open bodies of water by:

(1) preventing excessive vegetation removal from the sensitive, natural areas within or surrounding water bodies. The natural vegetation along water bodies (trees, shrubs, cattails, reeds, etc.) provides important wildlife habitat. This vegetation helps maintain consistent water temperatures (critical for fish), provides habitat for fish-food organisms, acts as a filter for nutrients that enter surface water from cultivated land and stabilizes shoreline soils. Aquatic vegetation provides food and shelter for aquatic organisms. Aquatic plants also maintain water quality by stabilizing bottom sediments and utilizing nutrients that would otherwise cause algal blooms.

(2) ensuring that pesticide selection and application methods in natural areas surrounding water bodies will not result in pesticides entering surface water;

(3) ensuring that pesticide storage or washing of equipment are only conducted when absolutely necessary and will not result in pesticides entering surface water; and

(4) ensuring that any pesticide use in an open body of water can be justified without excessive impacts on fish and other aquatic life.

Who Requires a Special Use Approval?

(1) Anyone (other than those listed below) who **applies** or **stores** a pesticide, or **washes pesticide application equipment** on, in or within 30 horizontal metres of an open body of water. The following persons **do not** require a Special Use Approval:

i) a person applying a **fish toxicant** to water in accordance with an authorization issued by the Director of Fisheries Management of Alberta Environmental Protection

ii) a person applying a **vertebrate toxicant bait** on ice cover or on land within 30 horizontal metres of a frozen water body pursuant to a government pest control program

iii) a **certified applicator** applying a pesticide in accordance with the **Environmental Code of Practice for Pesticides**, or

iv) a person applying a pesticide on **cultivated land** (includes cropland, improved pasture and, private residential lawns and gardens)

Alberta Environmental Protection, Chemicals Assessment and Management Division, Pesticide Management Branch, 9820 - 106 Street, Edmonton Alberta T5K 2J6
Phone (403) 427-5855 Fax: (403) 422-5120

SPECIAL USE APPROVAL

How to Apply for a Special Use Approval
An application form, available from any office of the Pesticide Management Branch, must be completed and returned. The application will be checked to ensure that all information necessary for the Director to review the proposed pesticide treatment has been provided. The applicant will then be required to give public notice, officially termed "Notice of Application", that an approval application has been made.

The Director has the authority to waive the "Notice of Application" and instead declare the application "Routine" or "Emergency". In either case the approval holder must provide public notice, officially termed "Notice of Decision", after the approval has been issued. Be advised that a "Notice of Application" is rarely waived.

Anyone concerned about a proposed treatment can submit a formal "Statement of Concern" to Alberta Environmental Protection for consideration in the application review. A Statement of Concern must be submitted within 30 days of the last posting of the "Notice of Application". If the Departmental assessment is favourable, a Special Use Approval will be issued.

Anyone who has filed a Statement of Concern has the right to appeal issuance of a Special Use Approval by filing a "Notice of Objection" with the Environmental Appeal Board. Any applicant for a Special Use Approval has the right to appeal a decision **not** to issue a Special Use Approval by filing a Notice of Objection with the same Environmental Appeal Board.

A Special Use Approval application will require a minimum of 1 month and may take up to three months for processing given the time it takes for the completion of public notification, resolution of "Statements of Concern", the assessment of appropriate conditions to be assigned to the approval, and any resulting Notices of Objection. It is recommended to make application well in advance of the date that the approval is required.

Copies of the Environmental Protection and Enhancement Act and its regulations are available from Queen's Printer Bookstore (Calgary 297-6251, Edmonton 427-4952).

Questions concerning Special Use Approvals, or any other pesticide regulatory requirement can be directed to the nearest Pesticide Management Branch office:

Grande Prairie **(538-5460 Fax: 538-5336)**
Room 1701, Provincial Building
10320 - 99 Street, Grande Prairie, Alberta T8V 6J4

Edmonton **(427-5855 Fax: 422-5120)**
5th Floor, Oxbridge Place
9820 - 106 Street, Edmonton, Alberta T5K 2J6

Red Deer **(340-5310 Fax: 340-5022)**
3rd Floor, Provincial Building
4920 - 51 Street, Red Deer, Alberta T4N 6K8

Calgary **(297-8262 Fax: 297-8232)**
2nd Floor, Deerfoot Square
2938 - 11 Street NE, Calgary, Alberta T2E 7L7

Lethbridge **(381-5511 Fax: 382-4428)**
2nd Floor, Provincial Building
200 - 5 Avenue South, Lethbridge, Alberta T1J 4C7

The above offices can also be reached by phoning 310-0000 from anywhere in Alberta.

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